

The Lepidoptera of a central florida sand pine scrub community

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Abstract. A Lepidoptera survey was conducted between September 1982 and April 1985 in the Sand Pine Scrub area of Blue Spring State Park, Volusia County, Florida. A total of 633 species comprising 43 families was recorded, including at least 12 undescribed species and one verified state record. Abundance and monthly distribution records are listed for moths. A floristic study of the scrub was also conducted.

Introduction

Blue Spring State Park is located in the west-central portion of Volusia County just outside of Orange City, Florida. (Fig. 1). The area consists of 590 hectares (1459 acres) of scrub, flatwoods, hammock, swamps, marshes, and riverine environments, and has a subtropical maritime climate. Volusia County has a mean temperature of about 21°C, and the mean annual rainfall is 1250mm. About 60% of the annual rainfall occurs between the first of June and the middle of October (USDA 1980). Volusia County sits within the lower Atlantic Coastal Plain. The surface is covered with sandy marine sediments from the late Pleistocene to Recent Age. Blue Spring is located on the extreme western edge of the Deland Ridge, an ancient sand dune formed during an interglacial period approximately 125,000 years ago.

With the cooperation of the Florida State Park Service, professional and amateur lepidopterists have begun to accumulate much-needed data on Florida Lepidoptera. Extensive surveys are being conducted in north and south Florida at Torreya and Collier-Seminole State Parks, respectively. The present study was done to provide additional distribution records for Lepidoptera, with a emphasis on moths, in the north-central region of Florida by concentrating on one specific, and little studied but important endemic plant community, the Sand Pine Scrub. Monthly distribution and abundance figures for all moth species were compiled, along with a floristics survey of the scrub.

Methods & Materials

Lepidoptera were collected an average of five times per week from September 1982 to April 1985. Collecting permits were issued annually from the Florida Department of Agriculture and Department of Natural Resources. Butterflies were recorded by collecting or by field sightings, but all moths were recorded

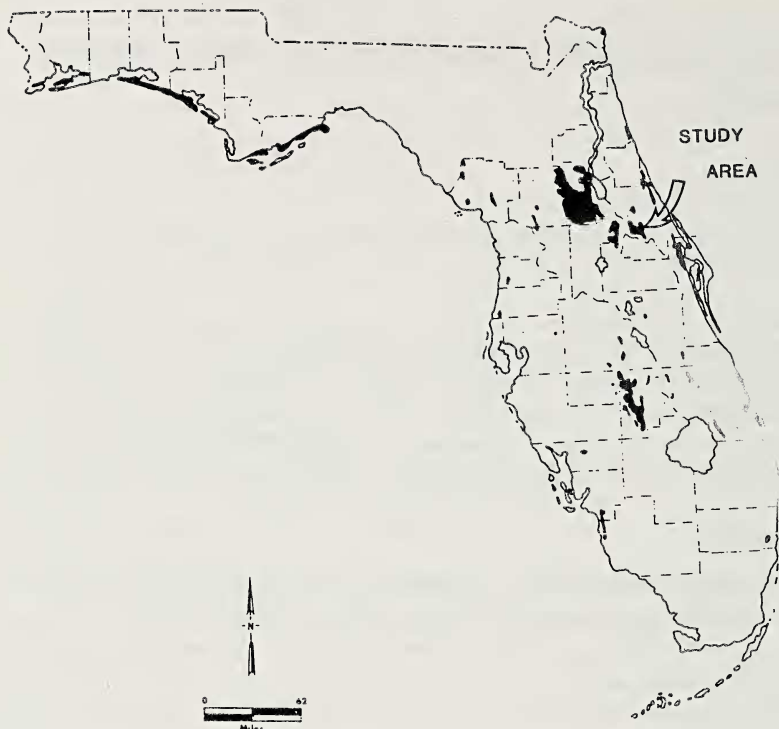


Fig. 1. Study site and distribution of sand pine scrub.

only by collecting. Moths were collected at all hours except 0300 to 0600. Ten existing mercury vapor lights on various park buildings were the primary source for moths. Occasionally, filtered black lights were also used. A portable generator was used in areas inaccessible to electricity. A bait of molasses, sugar, and stale beer was brushed on tree bark, primarily to catch members of the genera *Catocola* and *Zale*. The pheromone 3, 13-octadecadien-1-OL acetate (ZZ-ODDA) was used to collect 3 of the 4 species of Sesiidae. Macrolepidoptera were collected in cyanide and ethyl acetate killing jars. Microlepidoptera were collected in small vials and frozen to prevent damage. Several species appeared for only one or two months but were found in higher numbers than other species recorded for five or six months. Therefore, monthly distribution was not considered in determining abundance of each species. Abundance was determined by the total number of specimens observed during the 32 month collecting period. The following criteria were used: uncommon (1-5 specimens), occasional (6-20), common (21-50), abundant (51+). New species are indicated in the checklist as n. sp. A question mark preceding a generic or specific name indicates an uncertain determination.

Approximately one-third of the Lepidoptera were identified through the taxonomic literature. Those references included Blanchard (1979), Blanchard & Knudson (1983), Cashatt (1984), Covell (1984), Eichlin & Cunningham (1978), Hodges et al. (1983), Hodges (1986), Holland (1968), Howe (1975), Kimball (1965), Klots (1951), Maxwell (1981), Mitchell & Zim (1977), Rockburne &

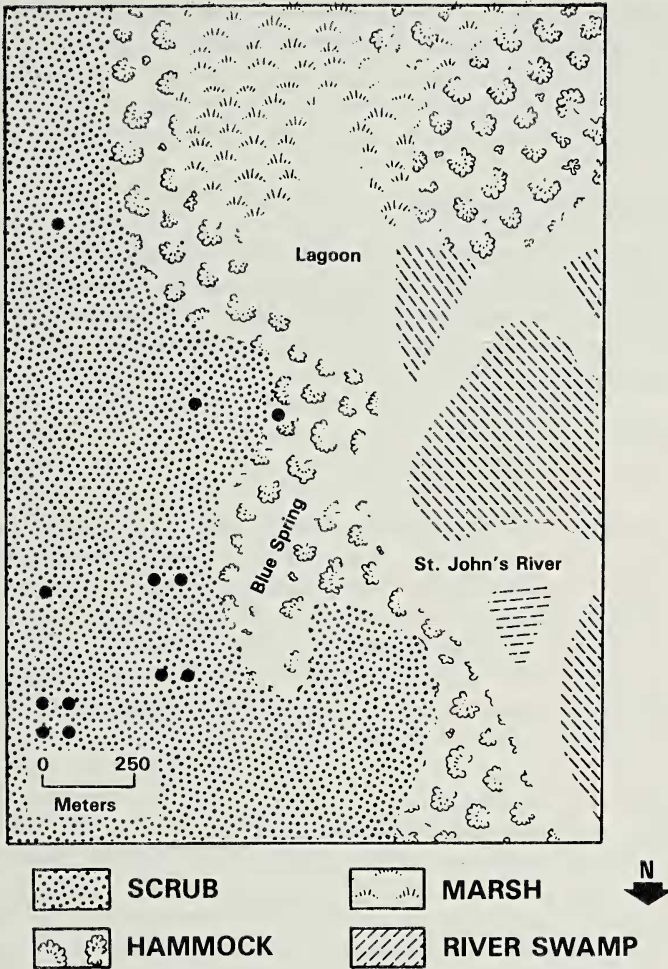


Fig. 2. The vegetation of Blue Spring State Park. Collecting sites are indicated by circles.

Lafontaine (1976), and the USDA (1975). Approximately one-third were identified through the use of a comparative collection at the Florida Department of Agriculture, Division of Plant Industry, Gainesville, Florida. The final third were identified by D. Baggett, L. Dow, & J. Heppner. Forty species of microlepidoptera were deposited in the Division of Plant Industry collection (FSCA), while all others remained in the private collection of the author.

A survey of the plants found in the scrub of Blue Spring was conducted between April and August 1986. Plants were prepared with a standard leaf press, then identified, mounted, and labeled. Voucher specimens of all vascular plants collected are on deposit in the Florida State Museum's Herbarium (FLAS), University of Florida, Gainesville. References used for plant identification included Cronquist (1980), Duncan (1967), Duncan & Foote (1975), Grimm

(1966), Kartesz (1980), Kurz & Godfrey (1962), Radford et al. (1968), Tarver et al. (1979), USDA (1982), and Wunderlin (1982).

Description of Study Area

Some moths not normally associated with a scrub environment were collected. Since Lepidoptera may fly from one area to another, plant species in several other plant communities surrounding the scrub may be serving as larval food hosts. Therefore, the common vegetation of these communities was also included in this study (FIG. 2).

HAMMOCK

Bordering the scrub throughout the park is a mesic mixed hardwood hammock. The dominant species include *Sabal palmetto* (Walt.) Lodd. ex Schult., *Quercus virginiana* Mill., *Q. laurifolia* Michx., *Liquidambar styraciflua* L., and *Magnolia grandiflora* L. Common understory species include *Quercus nigra* L., *Carya glabra* (Mill.) Sweet, *Arilia spinosa* L., *Asimina parviflora* (Michx.) Dunal, *Callicarpa americana* L., and *Gelsemium sempervirens* (L.) St. J. H. Hil. Other common plants include *Phlebodium aureum* (L.) Small, *Polypodium polypodioides* (L.) Watt, *Vittaria lineata* (L.) J. Smith, *Mitchella repens* L., *Epidendrum conopseum* R. Br., *Ruellia caroliniensis* (J.F.Gmel.) Steud., *Salvia lyrata* L., and *Elaphantopus elatus* Bertol.

FLATWOODS & BAYHEAD

A major part of the flatwoods is dominated by *Pinus elliottii* Engelm. with a thick understory of *Serenoa repens* (Bartr.) Small. Other important shrubs include *Ilex glabra* (L.) A. Gray, *Lyonia fruticosa* (Michx.) G.S. Torr., *L. lucida* (Lam.) K. Koch and *Asimina reticulata* Shuttlew. ex Chapm. Herbaceous plants include *Liatris tenuifolia* Nutt., *Sabatia brevifolia* Raf., *Polygala nana* (Michx.) DC, *P. lutea* L., *Eriocaulon compressum* Lam., and *Lachnocaulon anceps* (Walt.) Morong. In the more poorly drained sites the dominant pine is typically *Pinus serotina* Michx. Herbaceous plants in this area include *Pinguicula pumila* Michx., *Drosera* sp., *Utricularia* sp., and *Hypoxis* sp. These soils become even further saturated as a flatwoods depression forms a small bayhead on the south edges of the park. The characteristic trees of this area are *Taxodium distichum* (L.) L. Rich., *Persea palustris* (Raf.) Sarg., *Gordonia lasianthus* (L.) Ellis, and *Magnolia virginiana* L. Understory plants include *Smilax glauca* Walt., *Woodwardia areolata* (L.) Moore, *Osmunda cinnomomea* L., and *O. regalis* L.

FLOODPLAIN FORESTS

Also known as river swamps, these areas border the St. Johns River and are constantly inundated. These deciduous hardwood swamps consist of *Sabal palmetto*, *Taxodium distichum*, *Carya aguatica* (Michx.) Nutt. ex Ell., *Nyssa biflora* (Walt.) D. Sarg., *Acer rubrum* L., *Fraxinus caroliniana* Mill., and *Cornus foemina* Mill. Common herbaceous plants include *Saururus cernuus* L., *Thalia geniculata* L., *Crinum americanum* L., and *Aster caroliniana* Walt.

AQUATIC ENVIRONMENTS

These areas include the spring run, lagoon, freshwater marsh, and stream-banks. The marshes are dominated either by *Spartina bakeri* Merr. or *Panicum hemitomon* Schult. Commonly scattered along marsh edges are woody species such as *Salix caroliniana* Michx., *Sambucus canadensis* L., and *Cephalanthus occidentalis* L.

The open areas of the river, lagoon, and spring run include plants such as *Pistia stratiotes* L., *Eichhornia crassipes* (Mart.) Solms, *Nuphar luteum* (L.) Sibth. + J.E. Smith, *Ceratophyllum demersum* L., and *Salvinia minima* Baker.

Many plants found along the banks of these waters occur naturally or were washed in from the river. Common species along the waters edge include *Sagittaria latifolia* Willd., *Alternanthera philoxeroides* (Mart.) Griseb., *Pontederia cordata* L., *Kosteletzkya virginica* (L.) Presl ex A. Gray. *Hibiscus coccineus* (Medic.) Walt., *Amaranthus australis* (A. Gray) Sauer, *Vigna luteola* (Jacq.) Benth., *Lythrum salicaria* L., and *Paspalum repens* Berg.

SCRUB

Several times during Florida's history, the sea levels were higher than they are today and the coastline was much further inland. Sand dunes formed along these ancient shorelines and still persist today. These are the natural sites of the Sand Pine Scrub community in Florida (DNR 1975). With the exception of a few locations in Alabama, the Sand Pine Scrub is restricted to the state of Florida (Laessle 1958). The scrub consists of well-drained, fine white siliceous sands and is composed almost entirely of thick growths of broad-leaved evergreen shrubs. Because of the sterile soils, there is very little diversity among the herbaceous plants. Although a fire-dependent community, ground cover is sparse and leaf litter accumulates very slowly. Therefore, fires are infrequent, perhaps every 20 to 40 years. When a fire does occur, it will burn hot enough to allow the serotinous cones of the Sand Pine to open and begin dropping seeds. If a scrub is not exposed to fire, it will most likely succeed into a xeric hammock (Monk 1968). Due to their dry upland locations, scrub environments are rapidly being lost to real estate development, and therefore are considered highly endangered areas (DNR 1975).

The Sand Pine Scrub of Blue Spring is part of a much larger scrub which extends south and east through Orange City and Deltona. Due to the growth of the area, especially in Deltona, this scrub is disappearing. The scrub within the boundaries of Blue Spring consists of approximately 202 hectares (500 acres), situated on soils of Daytona and Paola fine sand (USDA 1980). North and east of the park, nearly 200 more hectares continue to occur on Apopka fine sands until they meet a Longleaf Pine/Turkey Oak Sandhill area.

The overstory of the Blue Spring scrub is dominated by sand pine, (*Pinus clausa* (Chapm. ex Engelm.) Vasey ex Sarg.). The understory consists of three dominant scrub oaks: sand-live oak (*Quercus geminanta* Small), myrtle oak (*Q. myrtifolia* Willd.), and chapman oak (*Q. chapmanii* Sarg.). Other important shrubs include devilwood or wild olive (*Osmanthus americana* (L.) Benth. & Hook. f. ex Gray), scrub holly (*Ilex opaca* Ait. var. *arenicola* (Ashe) Ashe), carolina holly (*I. ambigua* (Michx.) Torr.), saw palmetto (*Serenoa repens*), silkbay (*Persea humilis* Nash), and rusty lyonia (*Lyonia ferruginea* (Walt.) Nutt.). The ground cover includes small leaved blueberry (*Vaccinium myrsi-*

nites Lam.), gopherapple (*Licania michauxii* Prance), and scattered lichens *Cladina* spp. Occasionally a scrub will lack sand pine all together, yet the understory will have the same species composition. This situation is found in a 20 hectare section of the park scrub.

Many of the sand pines in the park are beginning to degenerate. By 50 years of age, heartrot is a common occurrence. With such a dense understory, competition has made it difficult for sand pine to regenerate. Only in the highly disturbed areas such as old fire roads and borrow pits are the sand pine seedlings growing successfully. Due to the disturbed nature of this scrub, many successional plant species have invaded the area and this is resulting in a faster accumulation of leaf litter. Because of the campground and cabins, the high recreational use of the area makes it unfeasible for prescribed burning. With each passing year, the scrub accumulates large amounts of herbaceous and woody litter, both on the soil surface and in the trees. This suggests that the probability of a wildfire is greatly increased (Veno 1976).

Annotated List of Scrub Plants

The following is a list of plants recorded from the scrub of Blue Spring. Vascular plant nomenclature follows that of Wunderlin (1982). Genera and species within the families are arranged alphabetically.

PINACEAE

- Pinus clausa* (Chapm. ex Engelm.)
Vasey ex Sarg.

POACEAE

- Andropogon glomeratus* (Walt.)
BSP.
var. *glaucopsis* (Ell.) Mohr.
Eustachys neglecta (Nash) Nash
Panicum ciliatum Ell.
P. commutatum Schult.
P. miliaceum L.
Paspalum notatum Fluegge.
Setaria geniculata (Lam.) Beauv.

CYPERACEAE

- Rhynchospora megalocarpa* A. Gray

ARECACEAE

- Serenoa repens* (Bartr.) Small

XYRIDACEAE

- Xyris caroliniana* Walt.

JUNCACEAE

- Juncus scirpoides* Lam.

SMILACEAE

- Smilax auriculata* Walt.
S. glauca Walt.
S. pumila Walt.

AGAVACEAE

- Yucca flaccida* Haw.

MYRICACEAE

- Myrica cerifera* L.

FAGACEAE

- Quercus chapmanii* Sarg.
Q. geminata Small
Q. laurifolia Michx.
Q. myrtifolia Willd.

ULMACEAE

- Ulmus americana* L.

POLYGONACEAE

- Polygonella gracilis* (Nutt.) Meisn.

AMARANTHACEAE

- Froelichia floridana* (Nutt.) Moq.

MAGNOLIACEAE

- Magnolia grandiflora* L.

ANNONACEAE

- Asimina obovata* (Willd.) Nash

LAURACEAE

- Cinnamomum camphora* (L.) Presl

BERSEACEAE

- Persea humilis* Nash

BRASSICACEAE

- Lepidium virginicum* L.

ROSACEAE

- Prunus serotina* Ehrh.

CHRYSOBALANACEAE

- Licania michauxii* Prance

FABACEAE

- Amorpha fruticosa* L.
Desmodium incanum DC.
D. tortuosum (Sw.) DC.
Galactia eliottii Nutt.
G. floridana Torr. & Gray
G. ? regularis (L.) BSP
Medicago lupulina L.
- EUPHORBIACEAE
- Chamaesyce hyssopifolia* (L.) Small
Cnidioscolus stimulosus (Michx.)
 Engelm. & Gray
Croton glandulosus L.
- EMPETRACEAE
- Ceratiola ericoides* Michx.
- ANACARDIACEAE
- Rhus copallina* L.
- AQUIFOLIACEAE
- Ilex ambigua* (Michx.) Torr.
- I. opaca* Ait. var. *arenicola* (Ashe)
 Ashe
- VITACEAE
- Ampelopsis arborea* (L.) Koehne
Parthenocissus quinquefolia (L.)
 Planch.
Vitis aestivalis Michx.
V. rotundifolia Michx. (*munsoniana*
 Simpson of some authors)
- CLUSIACEAE
- Hypericum hypericoides* (L.)
 Crantz.
H. reductum P. Adams
- CISTACEAE
- Helianthemum corymbosum* Michx.
Lechea mucronata Raf.
- PASSIFLORACEAE
- Passiflora incarnata* L.
- CACTACEAE
- Opuntia humifusa* (Raf.) Raf.
- ONAGRACEAE
- Gaura angustifolia* Michx.
Oenothera laciniata Hill
- APIACEAE
- Apium leptophyllum* (Pers.) Muell.
- ERICACEAE
- Befaria racemosa* Vent.
Gaylussacia dumosa (Andrz.)
 T. & G.
G. tomentosa (A. Gray) Small
Lyonia ferruginea (Walt.) Nutt.
L. lucida (Lam.) K. Koch
- Vaccinium myrsinites* Lam.
V. stamineum L.
- SAPOTACEAE
- Bumelia tenax* (L.) Willd.
- EBENACEAE
- Diospyros virginiana* L.
- OLEACEAE
- Osmanthus americana* (L.) Benth. &
 Hook. f. ex Gray
- LOGANIACEAE
- Polypremum procumbens* L.
- ASCLEPIADACEAE
- Asclepias tomentosa* Eill.
- CONVOLVULACEAE
- Ipomoea pandurata* (L.) G.F.W. Mey
Merremia dissecta (Jacq.) Hall. f.
- POLEMONIACEAE
- Phlox drummondii* Hook.
- VERBENACEAE
- Callicarpa americana* L.
- LAMIACEAE
- Hyptis mutabilis* (A. Rich) Briq.
Monarda punctata L.
Salvia lyrata L.
Teucrium canadense L.
Trichostema dichotomum L.
- SCROPHULARIACEAE
- Gratiola hispida* (Benth.) Pollard
Linaria canadensis (L.) Dum.
Seymeria pectinata Pursh.
- BIGNONIACEAE
- Campsis radicans* (L.) Seem. ex
 Bureau
- RUBIACEAE
- Diodia teres* Walt.
Richardia brasiliensis (Moq.)
 Gomez
- ASTERACEAE
- Baccharis halimifolia* L.
Berlandiera subacaulis (Nutt.)
 Nutt.
Bidens alba (L.) DC.
Carphephorus corymobsus (Nutt.)
 Torr. & Gray
C. odoratissimus (J.F. Gmel.) Herb.
Erigeron strigosus Muhl.
Eupatorium compositifolium
 Walt.
Garberia heterophylla (Bartr.)
 Merr. & Harp.

<i>Gnaphalium falcatum</i> Lam.	Nutt.
<i>Heterotheca subaxillaris</i> (Lam.) Britt. & Rusby	<i>Pterocaulon virgatum</i> (L.) DC.
<i>Hieracium megacephalon</i> Nash.	<i>Pyrrhopappus carolinianus</i> (Walt.) DC.
<i>Krigia virginica</i> (L.) Willd.	<i>Solidago</i> sp.
<i>Lactuca graminifolia</i> Michx.	<i>Vernonia gigantea</i> (Walt.) Trel. ex Branner & Coville
<i>Pityopsis graminifolia</i> (Michx.)	

Results & discussion

A total of 633 species of Lepidoptera were recorded, consisting of 591 moths and 42 butterflies in 43 families. Families with the most species recorded were Noctuidae (172), Pyralidae (100), and Tortricidae (76). The average monthly distribution curve shows that the greatest species diversity occurred in the spring, and the least diversity in the summer (Fig. 3). The highest total was in March (201 species) and the lowest was in July (32 species). The fall, winter, and spring months were surveyed for three years, while the summer months were surveyed for only two years. Thus, sampling time may account in part for the lower number of species throughout June, July, and August.

#226, previously known from Florida as *E. poaphilodes*, is now listed as *E. fergusonii* (Solis 1986). #197 is unconfirmed as being collected within the boundaries of Blue Spring. #555 is unconfirmed as the specimen is missing. #506 was identified from the casings. #485 was collected at light and not with the Sesiidae pheromone. Heppner (personal communication) indicated that the collection of #134 *Phyllonorycter fitchella* (Gracillariidae) represented the first report of this species in Florida. Twelve other microlepidoptera were determined by Heppner as being new species, most or all of which should be state records upon their description. Doug Ferguson, of the Smithsonian Natural History Museum, and David Baggett (personal communication), indicated that #129 is probably a worn specimen of *frondaria* or *N. bifiliata*, and its very faded condition makes a final determination unlikely. *Synchlora aerata* has yet to be recorded this far south. Baggett indicates that #187 identified here as *Arugisa latiorella*, may be *A. watsoni* Richards. Baggett also mentioned that #257, #258, and #559 may be state records and, upon future examination by taxonomists, the list should contain other state records as well as hundreds of county records. This study has facilitated a better understanding of the distribution of Florida Lepidoptera, and should also provide the basis for further investigations into host plant relationships and possible endemic lepidopterans of scrub environments.

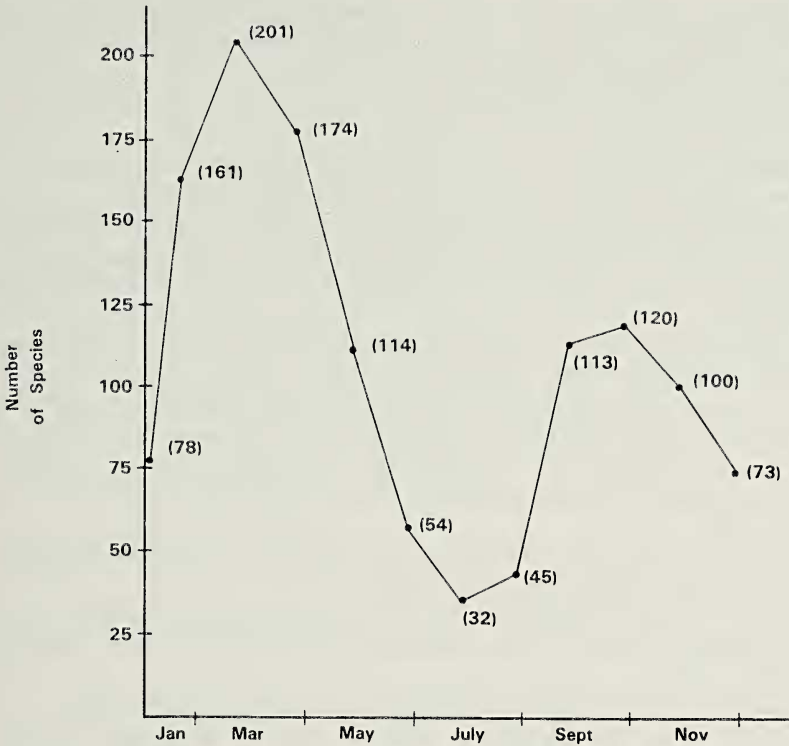


Fig. 3. Average monthly distribution of moth species between September 1982 and April 1985.

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Literature Cited

- BLANCHARD, A., 1979. Five new species of the tribe Eucosmini (Tortricidae). *J. Lepid. Soc.* 33:209-215.
- BLANCHARD, A. & E. C. KNUDSON, 1983. Two new species of the tribe Eucosmini (Tortricidae) closely related to *Phaneta granulata* (Kearfott). *J. Lepid. Soc.* 37:140-145

- CASHATT, E. D., 1984. Revision of the genus *Parachma* Walker (Pyrilidae: Chrysauginae) of America north of Mexico, with a description of a new genus. *J. Lepid. Soc.* 38:268-280
- COVELL, C. V. Jr., 1984. A Field Guide to the Moths of Eastern North America. Houghton Mifflin Co., Boston. 496p.
- CRONQUIST, A., 1980. Vascular Flora of the Southeastern United States. Vol.1 Asteraceae. Univ. of North Carolina Press, Chapel Hill, 261p.
- DEPARTMENT OF NATURAL RESOURCES, 1975. Florida Environmentally Endangered Lands Plan. Division of Recreation & Parks, Tallahassee. 143p.
- DUNCAN, W. H., 1967. Woody vines of the southeastern states. *SIDA Cont. to Bot.* 3:1-76
- DUNCAN, W. H. & L. E. FOOTE, 1975. Wildflowers of the Southeastern United States. Univ. of Georgia Press, Athens. 296p.
- EICHLIN, T. D. & H. B. CUNNINGHAM, 1978. The Plusiinae (Lepidoptera: Noctuidae) of America north of Mexico, emphasizing genitalic and larval morphology. USDA Tech. Bull. #1567. Washington, D. C. 122p.
- GRIMM, W. C., 1966. Recognizing Native Shrubs. Stackpole Books, Harrisburg, PA. 319p.
- HODGES, R. W., et al., 1983. Checklist of the Lepidoptera of America North of Mexico. Univ. Press, Cambridge. 284p.
- HODGES, R. W., 1986. Gelechioidea: Gelechiidae (in part) in Dominick, R. B., et al., The Moths of America North of Mexico, fasc. 7.1 Allen Press Inc. Lawrence, Kansas. 195p.
- HOLLAND, W. J., 1968. The Moth Book. Dover Publ. New York. 479p.
- HOWE, W. H., 1975. The Butterflies of North America. Doubleday & Co. Inc., Garden City, N. Y. 633p.
- KARTESZ, J. T. & R. KARTESZ, 1980. A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland. Univ. of North Carolina Press, Chapel Hill. 498p.
- KIMBALL, C. P., 1965. Lepidoptera of Florida. Div. of Plant Industry, Florida Dept. Of Agr., Gainesville. 311p.
- KLOTS, A. B., 1951. A Field Guide to the Butterflies of North America, East of the Great Plains. Houghton Mifflin Co., Boston. 349p.
- KURZ, H. & R. K. GODFREY, 1962. Trees of North Florida. Univ. of Florida Press, Gainesville. 311p.
- LAESSLE, A. M., 1958. The origin and successional relationships of sandhill vegetation and sand pine scrub. *Ecol. Monogr.* 28:361-387
- MAXWELL, L. S., 1959. Florida Insects. L.S. Maxwell Publ., Tampa. 120p.
- MITCHELL, R. T. & H. S. ZIM, 1962. Butterflies and Moths. Golden Press. New York. 160p.
- MONK, C. D., 1968. Successional and environmental relationships of the forest vegetation of north central Florida. *Am. Midl. Nat.* 79:441-457
- RADFORD, A. E., H. E. AHLES & C. R. BELL, 1968. Manual of the Vascular Flora of the Carolinas. Univ. of North Carolina Press, Chapel Hill. 1183p.
- ROCKBURNE, E. W. & J. D. LaFONTAINE, 1976. The Cutworm Moths of Ontario and Quebec. Canada Dept. of Agriculture, Ottawa. 164p.
- SOLIS, M. A., 1986. A new species of *Epidromia* (Noctuidae) from Florida. *J. Lepid. Soc.* 40:8-19
- TARVER, D. P., J. A. RODGERS, M. J. MAHLER, R. L. LAZOR, 1979.

Aquatic and Wetland Plants of Florida. Florida Dept. of Natural Resources, Tallahassee. 127p.

U.S. DEPARTMENT OF AGRICULTURE (USDA), 1975. Seed and Cone Insects of Southern Pines. U.S. Forest Service. General Technical Report SE-8. Asheville. 41p.

———, (USDA). 1980. Soil Survey of Volusia County, Florida. Soil Conservation Service, IFAS, Gainesville.

———, (USDA). 1982. National List of Scientific Plant Names. Soil Conservation Service, TP-159. Washington, D.C. 416p.

VENO, P.A., 1976. Successional relationships of five Florida plant communities. *Ecol.* 57:498-508.

WUNDERLIN, R. P., 1982. Guide to the Vascular Plants of Central Florida. Univ. Presses of Florida, Tampa. 472p.

Table 1. Complete listing of Lepidoptera of Blue Spring — Abundance indicated by C = common, O = occasional, U = uncommon, A = abundance

	Abundance	Month
APATELODIDAE		
1 <i>Olceclostera indistincta</i> (Hy. Edw.)	C	- F M - - - - - - - -
ARCTIIDAE		
2 <i>Afrida ydatodes</i> Dyar.	A	J F M - - - - - S O N -
3 <i>Ciseps fulvicollis</i> (Hbn.)	U	- - - - - - - - - N -
4 <i>Cisthene packardi</i> (Grt.)	C	- F M - - - - - - N -
5 <i>Cisthene striata</i> Ottol.	A	- - M A M - - - - - N -
6 <i>Cisthene subjecta</i> Wlk.	A	J - M A M - - - - - O N -
7 <i>Cisthene tenuifascia</i> Harv.	O	- - - A - - - - - - -
8 <i>Clemensia albata</i> Pack.	A	J - M A - - - - - - -
9 <i>Cosmosoma myrodora</i> Dyar	O	- F - - - - - - - N D
10 <i>Crambidia lithosiodes</i> Dyar	O	- - - - - - - - - N -
11 <i>Ecpantheria scribonia</i> (Stoll)	O	- - M - - - - - - - -
12 <i>Estigmene acrea</i> (Drury)	U	- - M - - - - - - - -
13 <i>Euerythra phasma</i> Harv.	O	- F M - - J - - - - - -
14 <i>Grammia nais</i> (Drury)	C	J F - - - - - A S - - -
15 <i>Halysidota tessellaris</i> (J.E.Smith)	C	- F - - M J - - S - - -
16 <i>Holomelina aurantiaca</i> (Hbn.)	C	J F M A - - - - - - -
17 <i>Holomelina ferruginosa</i> (Wlk.)	C	- F M - - - - - - - -
18 <i>Holomelina laeta</i> (Guer.-Meneville)	U	- - - - - - - - - D
19 <i>Holomelina opella</i> (Grt.)	U	- F M - - - - - - - -
20 <i>Holomelina rubicundaria</i> (Hbn.)	U	- - - A - - - - - - -
21 <i>Hyphantria cunea</i> (Drury)	A	J F M - - - - - S - - -
22 <i>Hypoprepia miniata</i> (Kby.)	A	- - - A M - - - - - O - -
23 <i>Leucanopsis longa</i> (Grt.)	U	- - - - - - - - - D
24 <i>Pyrrharctia isabella</i> (J.E.Smith)	O	- F - - - - - - - - -
25 <i>Spilosoma congrua</i> Wlk.	U	J F - - - - - - - - -
26 <i>Utetheisa bella</i> (L.)	C	J - - - - - - - - - N -
BLASTOBASIDAE		
27 <i>Glyphidocera lactiflosella</i> (Cham.)	C	- - - - - - - - S O - -
28 <i>Holcocera ? lepidophaga</i> Clarke	C	- - M A - - - - - - -
29 <i>Valentinia glandulella</i> (Riley)	C	- - - - - - - - O - -
30 sp.	U	- - M A - - - - - - -
COCHYLIDAE		
31 <i>Aethes</i> sp.	U	- - M - - - - - - - -
32 <i>Aethes</i> sp.	U	- - - - - - - - - D
33 <i>Aethes</i> sp.	U	- - - - - - - - - D
34 <i>Aethes</i> sp.	U	- - - - - - - - - O
35 <i>Aethes</i> sp.	O	- - M A - - - - S O N -
36 <i>Carolella bimaculana</i> (Rob.)	C	- - - A M J J - - O N -
37 <i>Carolella erigeronana</i> (Riley)	O	- - - A - - J - - - - -

Table 1 (Continued)

	Abundance	Month
38 <i>Carolella sartana</i> (Hb.)	0	- - - A - - - - -
39 <i>Hysterosia argentilimitana</i> Rob.	0	J F - A - - - - -
COLEOPHORIDAE		
40 <i>Homaledra sabalella</i> (Cham.)	U	- - - A - - - - -
COSMOPTERIGIDAE		
41 <i>Cosmopterix prob. gemmiferella</i> Clem.	U	- F M - - - - -
42 <i>Euclementia bassetella</i> (Clem.)	U	- - - - - A S - - -
43 <i>Perimede erransella</i> Cham.	U	- - M - - - - -
COSSIDAE		
44 <i>Givira francesca</i> (Dyar)	U	- - - A - - - - -
45 <i>Prionoxystus robiniae</i> (Peck)	U	- - M - - - - -
DREPANIDAE		
46 <i>Eudeileia luteifera</i> Dyar	U	- - - - - S - - -
ERIOCRANIDAE		
47 <i>Eriocraniella mediabulla</i> Davis	U	- - - A - - - - -
GELECHIIDAE		
48 <i>Anacamptis coverdalella</i> Kft.	0	- - - - M - - - - -
49 <i>Aristotelia roseosuffusella</i> (Clem.)	0	J - M - M - - - - -
50 <i>Aristotelia</i> sp.	U	- F - - - - - N D
51 <i>Aroga coloradensis</i> (Bsk.)	A	J - - - - - N -
52 <i>Dichomeris ? georgiella</i> (Wlk.)	U	- F - - - - -
53 <i>Evippe prunifoliella</i> Cham.	0	- F M - - - - -
54 <i>Exoteleia pinifoliella</i> (Cham.)	0	- F M - - - - -
55 <i>Polyhymno luteostrigella</i> Cham.	0	- - M - - - - -
56 ? <i>Sinoe</i> sp.	0	J F - - - - -
57 <i>Stegasta bosqueella</i> (Cham.)	C	- - - A M - - - S O - -
58 <i>Telphusa</i> sp.	U	J - M - - - - -
59 <i>Dichomeris ? xanthoa</i> Hodges	U	- - - - - O - -
60 sp.	U	- - - A - - - - -
61 sp.	U	- F - - - - -
62 <i>Dichomeris ? aglaia</i> Hodges	U	- - - - - D
63 sp.	U	- - - A - - - - -
64 sp.	U	- F - - - - -
GEOMETRIDAE		
65 <i>Anacamptodes defectaria</i> (Gn.)	U	J F - - M - - - - -
66 <i>Anacamptodes vellivolata</i> (Hulst)	U	- - - A - - - - - D
67 <i>Anavitrinella pampinaria</i> (Gn.)	C	- F M - M - - - - N -
68 <i>Besma quercivoraria</i> (Gn.)	U	- F M - - - - -
69 <i>Caripeta aretaria</i> (Wlk.)	0	J F M - - - - -
70 <i>Chlorochlamys chloroleucaria</i> (Gn.)	C	- F M A M - - - - -
71 <i>Chloropteryx tepperaria</i> (Hulst)	C	- F M A - - - - S O - -

Table 1 (Continued)

	Abundance	Month
72 <i>Cyclophora myrtaria</i> (Gn.)	U	-----O--
73 <i>Cymatophora approximaria</i> Hbn.	C	-----N-
74 <i>Dichorda iridaria latipennis</i> (Hulst)	O	J F - - M - - - O - -
75 <i>Disclisioprocta stellata</i> (Gn.)	U	-----S--
76 <i>Dyspteris abortivaria</i> H.-S.	O	- F M - - - - - - -
77 <i>Epimecis hortaria</i> (F.)	C	- F M - - - - - - -
78 <i>Episemasia solitaria</i> (Wlk.)	U	- - M A - - - - - - -
79 <i>Euchlaena amoenaria astylusaria</i> (Wlk.)	O	- F - - - - - S - - -
80 <i>Euchlaena deplanaria</i> (Wlk.)	O	- F M - - - - S O N -
81 <i>Eulithis diversilineata</i> (Hbn.)	C	- - - - M - - - O N -
82 <i>Eupithecia miserulata</i> Grt.	O	J - M - - - - - N D
83 <i>Eusarca confusaria</i> Hbn.	O	- F M - - - - - - -
84 <i>Eusarca fundaria</i> (Gn.)	U	- - - - - O - - -
85 <i>Eutrapela clemataria</i> (J.E.Smith)	A	- F M - - - - - - -
86 <i>Glenoides texanaria</i> (Hulst)	A	J F M - - - - - - D
87 <i>Hethemia pistasciaria insecutata</i> (Wlk.)	U	- - M - - - - - - - -
88 <i>Hydriomena pluviala meridianata</i> McD.	O	- - M A - - - - - - -
89 <i>Hypagyrtis esther</i> (Barnes)	C	J F - A M - J - - O N -
90 <i>Hypomecis umbrosaria</i> (Hbn.)	U	- - M - - - - - - - -
91 <i>Idaea demissaria</i> (Hbn.)	C	- - - A M - - - S O - -
92 <i>Idaea eremiata</i> (Hulst)	U	- - - A - - - - - - -
93 <i>Idaea ostentaria</i> (Wlk.)	U	- - - - - - - O - - -
94 <i>Idaea takturata</i> (Wlk.)	O	- - - A - - - S O N -
95 <i>Lambdina pultaria</i> (Gn.)	U	- - - A - - - - - - -
96 <i>Leptostales pannaria</i> (Gn.)	O	J F - - - - - - N D
97 <i>Lobocleta peralbata</i> (Pack.)	U	- - M - - - - - - - -
98 <i>Lophosis taberculata</i> (Hulst)	A	J F M A - - - S - N -
99 <i>Lychmosea intermicata</i> (Wlk.)	U	- - - A - - - - - - -
100 <i>Lycia ypsilon carlotta</i> (Hulst)	C	- F M - - - - - - - -
101 <i>Melanolopia canadaria</i> (Gn.)	O	- - M A - - - - - - -
102 <i>Metarranthis homuraria</i> (G. & R.)	U	- F M - - - - - - - -
103 <i>Metarranthis obfirmaria</i> (Hbn.)	U	- - M - - - - - - - -
104 <i>Nacophora quernaria</i> (J.E.Smith)	C	- F M - - - - - - - -
105 <i>Nematocampa limbata</i> (Haw.)	O	- - - A M - - - - - - -
106 <i>Nemoria b. bifiliata</i> (Wlk.)	C	- F M A M - J A - O - -
107 <i>Nemoria catachloa</i> (Hulst)	C	- F M A M - J - S - N -
108 <i>Nemoria elfa</i> Fgn.	C	- F - - - - - O N D
109 <i>Nemoria lixaria</i> (Gn.)	A	J - M A M J J - S O - D
110 <i>Nemoria saturiba</i> Fgn.	U	- - - A M - - - - - - -
111 <i>Nepheloleuca floridata</i> (Grt.)	U	- - - - - A - - - - -
112 <i>Orthonama centrostrigaria</i> (H.-S.)	C	J F - A - - - - - D
113 <i>Orthonama obstipata</i> (F.)	U	- F - - - - - - - - -
114 <i>Patalene olyzonaria</i> (Wlk.)	C	- - M - - - - S - N -

Table 1 (Continued)

	Abundance	Month
115 <i>Phigalia strigataria</i> (Minot)	U	-- M - - - - -
116 <i>Phrudocentra centrifrugaria</i> (H.-S.)	U	- - - - - O - -
117 <i>Pleuroprucha insulsaria</i> (Gn.)	U	- - - - - O N D
118 <i>Prochoerodes transversata incurvata</i> (Gn.)	O	- - - M - - - - -
119 <i>Protoboarmia porcelaria</i> (Gn.)	O	-- F M - - - - -
120 <i>Scopula aemulata</i> (Hulst)	U	- F - - - - -
121 <i>Scopula compensata</i> (Wlk.)	U	J - - - - - N -
122 <i>Scopula lautaria</i> (Hbn.)	O	J F M A - - - - - D
123 <i>Scopula timandrata</i> (Wlk.)	U	- - M - M - - - -
124 <i>Semiothisa bicolorata</i> (F.)	C	J - M - M - - - - N D
125 <i>Semiothisa distribuaria</i> (Hbn.)	U	- - - M - - - - -
126 <i>Semiothisa gnophosaria</i> (Gn.)	U	J - - A - - - - -
127 <i>Semiothisa sanfordi</i> Rindge	C	J F M A M - - - S O N -
128 <i>Stenaspilatodes antidiscaria</i> (Wlk.)	U	- F - - - - -
129 <i>Synchlora looks like aerata</i> (F.)	U	- - - - - O - -
130 <i>Synchlora frondaria</i> Gn.	C	J F M A - J - - S - N -
131 <i>Synchlora gerularia</i> (Hbn.)	C	- F M A - - J - - - N D
132 <i>Tornos scolopacinarius spodius</i> Rindge	C	- F M A - - - - -
GLYPHIPTERIGIDAE		
133 <i>Diploschizia</i> sp.	U	- - - A - - - - -
GRACILLARIIDAE		
134 <i>Phyllonorycter fitchella</i> (Clem.)	U	- - - - - O - -
135 sp.	U	- - M - - - - -
136 sp.	U	- - - - - O - -
137 sp.	U	- - - A - - - - -
INCURVARIIDAE		
138 <i>Adela caeruleella</i> Wlk.	U	- - M - - - - -
LASIOCAMPIDAE		
139 <i>Artace cribraria</i> (Ljungh)	C	- - M - - - - O N -
140 <i>Malacosma americana</i> (F.)	A	- - M A - - - - -
141 <i>Malacosma disstria</i> Hbn.	A	- - - M - - - - -
142 <i>Phyllodesma americana</i> (Harr.)	C	- F M A - - - - -
143 <i>Tolype minta</i> Dyar	U	- - - - - S - - -
144 <i>Tolype notialis</i> Franc.	C	J - M A - J - - S - N D
LIMACODIDAE		
145 <i>Adoneta spinuloides</i> (H.-S.)	U	- - - - - S - - -
146 <i>Apoda Y-inversa</i> (Pack.)	U	- - M - - - - -
147 <i>Apoda rectilinea</i> (G.& R.)	C	- - - A - J - - S - - -
148 <i>Euclea delphinii</i> (Bdv.)	A	- - M A M J - - - - N D
149 <i>Isa textula</i> (H.-S.)	A	- - - - - S O N D
150 <i>Isochaetes beutenmulleri</i> (Hy.Edw.)	U	- - - - - A - - - -
151 <i>Lithacodes gracea</i> Dyar	O	- - - A - - J - - - -
152 <i>Monoleuca erectifascia</i> Dyar	U	- - - - - J - - - - -

Table 1 (Continued)

	Abundance	Month
153 <i>Monoleuca</i> near <i>semifascia</i> (Wlk.)	U	- - - - - J - - - - -
154 <i>Monoleuca</i> <i>subdentosa</i> Dyar	A	- - - A - J J - S - - -
155 <i>Natada</i> <i>nasoni</i> (Grt.)	U	- - - - - J - - - - -
156 <i>Prolimacodes</i> <i>badia</i> (Hbn.)	A	- - - A - J J - S - - -
157 <i>Sibine</i> <i>stimulea</i> (Clem.)	C	- - - - - J - S O N -
LYMANTRIIDAE		
158 <i>Dasychira</i> <i>leucophaea</i> (J.E.Smith)	O	- - - A - - - - - - -
159 <i>Dasychira</i> <i>manto</i> (Stkr.)	C	J - M - M - - - - N -
160 <i>Dasychira</i> <i>tephra</i> Hbn.	O	- - - - M - - - - O - -
MEGALOPYGIDAE		
161 <i>Lagoa</i> <i>lacyi</i> B. & McD.	C	- - - - M J J - - - -
162 <i>Megalopyge</i> <i>opercularis</i> (J.E.Smith)	A	- - - - M J J - S - - -
MIMALLONIDAE		
163 <i>Cicinnus</i> <i>melsheimeri</i> (Harr.)	U	- - - - M - - - - - -
MOMPHIDAE		
164 <i>Mompha</i> <i>eloisella</i> (Clem.)	O	- - - A - - - - - - -
NEPTICULIDAE		
165 ? <i>Ectodemia</i> sp.	U	- - - - - - - - - - D
NOCTUIDAE		
166 <i>Abablemma</i> <i>brimleyana</i> (Dyar)	O	- - M A - - - - - O N -
167 <i>Acronicta</i> <i>afflicta</i> Grt.	U	- - - - - - - S - - -
168 <i>Acronicta</i> <i>americana</i> (Harr.)	U	- - M - - - - - - - -
169 <i>Acronicta</i> <i>brumosa</i> Gn.	U	- - M A - - - - - - -
170 <i>Acronicta</i> <i>hasta</i> Gn.	U	- F - - - - - - - - -
171 <i>Acronicta</i> <i>impleta</i> Wlk.	U	- F M - - - - - - - -
172 <i>Acronicta</i> <i>lanceolaria</i> (Grt.)	U	- - M - - - - - - - -
173 <i>Acronicta</i> <i>oblinita</i> (J.E.Smith)	U	J - - - - - - - - -
174 <i>Acronicta</i> <i>tritona</i> (Hbn.)	O	- - M - - - - - - N -
175 <i>Acronicta</i> <i>vinnula</i> (Grt.)	O	J F - - - - - A S - N -
176 <i>Agrotis</i> <i>subterranea</i> (F.)	U	- - M - - - - - - - -
177 <i>Alypia</i> <i>wittfeldi</i> Hy. Edw.	U	- - M - - - - - - - -
178 <i>Amolita</i> <i>fessa</i> Grt.	U	- - - A - - - - - O - -
179 <i>Amolita</i> <i>obliqua</i> Sm.	O	J F M A - - - - - - -
180 <i>Anicla</i> <i>infecta</i> (Ochs.)	U	- F - - - - - - - - -
181 <i>Anomis</i> <i>erosa</i> Hbn.	U	- - - - - - - - - N -
182 <i>Anomis</i> <i>flava</i> <i>fimbriago</i> (Steph.)	U	- - - - - - - - - N -
183 <i>Anomogyna</i> <i>elimata</i> (Gn.)	U	- - - - - - - - - N -
184 <i>Anticarsia</i> <i>gemmatilis</i> Hbn.	O	- - - - - - - S O N D
185 <i>Argyrogramma</i> <i>basigera</i> (Wlk.)	U	- - - M - - - - - N -
186 <i>Argyrostromis</i> <i>quadrifilaris</i> (Hbn.)	U	- - M - M - - - - - -
187 <i>Arugisa</i> ? <i>lacionella</i> (Wlk.)	U	- - M - - - - - - - -
188 <i>Bagisara</i> <i>repanda</i> (F.)	U	- - - - - - - - - D

Table 1 (Continued)

	Abundance	Month
189 <i>Bellura gortynoides</i> Wlk.	U	--- A --- A - 0 ---
190 <i>Bellura obliqua</i> (Wlk.)	U	- F M - - - - - - - - -
191 <i>Bleptina canadensis</i> Gn.	U	- F M - - - - - - - - -
192 <i>Bomolocha baltimoralis</i> (Gn.)	U	- - M A - - - - - - - - -
193 <i>Caenurgia chloropha</i> (Hbn.)	U	J - M - - - - - - - - -
194 <i>Callopostria cordata</i> (Ljungh)	U	- - - A - - - - - - - - -
195 <i>Callopostria granitosa</i> (Gn.)	U	- - - - - - - - - S - - -
196 <i>Callopostria mollissima</i> (Gn.)	U	- - - A M - - - - - - - - -
197 ? <i>Catocala amica</i> (Hbn.)	O	- - - - - J - - - - - - - - -
198 <i>Catocala andromedae</i> Gn.	A	- - - - - M - - - - - - - - -
199 <i>Catocala cara</i> Gn.	U	- - - - - J - - - - - - - - -
200 <i>Catocala clintonii</i> Grt.	U	- - - A M - - - - - - - - -
201 <i>Catocala connubialis</i> Gn.	U	- - - - - M - - - - - - - - -
202 <i>Catocala consors</i> (J.E.Smith)	U	- - - - - J - - - - - - - - -
203 <i>Catocala ilia</i> (Cram.)	A	- - - - - M J - - - - - - - - -
204 <i>Catocala jair</i> Stkr.	U	- - - - - J - - - - - - - - -
205 <i>Catocala louiseae</i> J.Bauer	C	- - - - - M - - - - - - - - -
206 <i>Catocala micronympha</i> Gn.	O	- - - - - M J - - - - - - - - -
207 <i>Catocala muliercula</i> Gn.	C	- - - - - M J - - - - - - - - -
208 <i>Catocala similis</i> Edw.	A	- - - - - M - - - - - - - - -
209 <i>Catocala ultronia</i> (Hbn.)	C	- - - - - M - - - - - - - - -
210 <i>Chaetoglaea tremula</i> (Harv.)	O	J F - - - - - - - - - D
211 <i>Charadra deridens</i> (Gn.)	O	- F M - - J J - S - - - -
212 <i>Cissusa spadix</i> (Cram.)	O	- F M A - - - - - - - - -
213 <i>Copipanolis styracis</i> (Gn.)	A	J F - - - - - - - - - -
214 <i>Cryphia nanoides</i> Franc. & Todd	C	- - M A M - - - - 0 - - -
215 <i>Cutina albopunctella</i> Wlk.	U	- - M - - - - - - - - -
216 <i>Cutina distincta</i> (Grt.)	U	- - M - - - - - - - - -
217 <i>Cutina</i> sp.	O	- F - A - - - - - - - - -
218 <i>Cutina</i> sp.	O	- F - - - - - - - - - -
219 <i>Derrima stellata</i> Wlk.	U	- - - - - - - - - S - - -
220 <i>Dyspyralis</i> n. sp.?	U	J - - - - - - - - - 0 - -
221 <i>Egira alternans</i> (Wlk.)	U	- - M - - - - - - - - -
222 <i>Elaphria chalcedonia</i> (Hbn.)	U	- - - A - - - - - 0 - 0
223 <i>Elaphria exesa</i> (Gn.)	U	- - M - - - - - - - - -
224 <i>Elaphria festivoides</i> (Gn.)	C	- - M A - - - - - N 0
225 <i>Elaphria versicolor</i> (Grt.)	O	- F - - - - - - - - - D
226 <i>Epidromia fergusonii</i> Solis	U	- - - - - - - - - 0 - -
227 <i>Euclida cuspidata</i> (Hbn.)	U	- - - A - - - - - - - - -
228 <i>Eucoptocnemis dapsilis</i> (Grt.)	U	- - - - - - - - - N -
229 <i>Eudryas grata</i> (F.)	U	- - - - - J - - - - - - - - -
230 <i>Eudryas unio</i> (Hbn.)	U	- - M - - - - - - - - -

Table 1 (Continued)

	Abundance	Month
231 Eumicremma minima (Gn.)	U	- - - - - S O - -
232 Eutolype rolandi Grt.	U	- - M - - - - - - -
233 Feltia geniculata G.& R.	U	- - - - - - - O N -
234 Galgula partita Gn.	U	- F M - - - - - - -
235 Harrisimemma trisignata (Wlk.)	U	- - - - - S - - -
236 Heliothis turbatus (Wlk.)	U	- - - - - O - - -
237 Heliothis virescens (F.)	U	- - - A - - - S - - -
238 Hemeroplanis habitalis (Wlk.)	C	- - M - - - J - - - -
239 Himella intractata (Morr.)	U	- - M - - - - - - -
240 Homophoberia cristata Morr.	U	- - - A - - - - - - -
241 Hormisa orciferalis Wlk.	U	- F M - - - J A - - - -
242 Hormoschista latipalpis (Wlk.)	O	- - - A - - - A S - N -
243 Hypenula cacuminalis (Wlk.)	U	- - - A M - - - - - -
244 Hypsoropha hormos Hbn.	O	- - M - M - - - - - -
245 Hypsoropha monilis (F.)	U	- - M - - - - - - -
246 Idia aemula Hbn.	O	J - M - - - - - - -
247 Idia americalis (Gn.)	U	- - - A - - - - - - -
248 Idia lubricalis (Gey.)	C	- - - - M - - - - - -
249 Iodopepla u-album (Gn.)	U	J - - - - - - - - -
250 Isogona tenuis (Grt.)	U	- - - - - A - - - - -
251 Laciniipolia laudabilis (Gn.)	O	J F M A - - - - - O - -
252 Lascoria ambigualis Wlk.	U	- F - - - - - - - - -
253 Ledaea perditalis (Wlk.)	O	- F M A - - - - - - -
254 Lesmone detrahens (Wlk.)	U	- - - A - - - - - - -
255 Lesmone hinna (Gey.)	U	- - - - M - - - - - N -
256 Leucania scirpicola Gn.	U	- F - A - - - - - - -
257 Lithophane looks like innominata (Smith)	U	J - - - - - - - - -
258 Lithophane viridipallens Grt.	U	J - - - - - - - - -
259 Lithophane sp.	U	- F - - - - - - - - -
260 Litoprosopus futilis (Grt. & Rob.)	U	- - - - - J - - - - -
261 Marathyssa basalis Wlk.	O	J - M - - - - - - - -
262 Marathyssa inficita (Wlk.)	O	- - M A M - - - - - -
263 Meganola minuscula (Zell.)	O	- F - - M - - - - - O - -
264 Melipotis jucunda Hbn.	O	- - - A M - - - - - - -
265 Meropleon cosmion Dyar	U	- - - - - - - - - N D
266 Metalectra quadrisignata (Wlk.)	U	- - M - - - - - - - -
267 Metalectra sp.	U	- - - - M - - - - - - -
268 Metria amella (Gn.)	U	- - M A - - - - - - -
269 Moccis disseverans (Wlk.)	O	- - - - - - - - - O - -
270 Moccis latipes (Gn.)	C	- - - - - - - - - O - -
271 Moccis marcida (Gn.)	U	- F - - - - - - - - -
272 Moccis texana (Morr.)	U	- - - - - - - - - O - -
273 Morrisonia confusa (Hbn.)	C	- - M A - - - - - - -

Table 1 (Continued)

	Abundance	Month
274 <i>Morrisonia mucens</i> (Hbn.)	A	- F M A - - - - -
275 <i>Nigelia formosalis</i> Wlk.	C	- F M A M - - - S O - -
276 <i>Nola sorghiella</i> Riley	U	- - - - - A S - - -
277 <i>Ogdoconta cinereola</i> (Gn.)	U	- - M - - - - - - - -
278 <i>Oligia fractilinea</i> (Grt.)	U	- - - - - - - - O - -
279 <i>Ophiuche minualis</i> (Gn.)	U	- - - - - - - - N -
280 <i>Oruza albocostaliata</i> (Pack.)	O	- - - A - J J - - - -
281 <i>Oxycilla prob. mitographa</i> (Grt.)	U	- - - - - - - S - - -
282 <i>Paectes abrostoloides</i> (Gn.)	U	- - - - - - - S - - -
283 <i>Palthis angulalis</i> (Hbn.)	U	- - - A - - - - - O - -
284 <i>Palthis asopialis</i> (Gn.)	U	J F - - M - - - - - D
285 <i>Pangrapta decoralis</i> Hbn.	O	- - M A M - - - - - -
286 <i>Panopoda repanda</i> (Wlk.)	U	- - M - - - - - - - -
287 <i>Panopoda rufimargo</i> (Hbn.)	U	- - - M - - - - - - -
288 <i>Panthea furcilla</i> (Pack.)	C	J - M - - - - - - N D
289 <i>Parallelia bistrariis</i> Hbn.	U	- - - M - - - S - - -
290 <i>Phalaenostola larentioides</i> Grt.	U	- - - A - - - - - - -
291 <i>Phoberia atomaris</i> Hbn.	O	- - M - - - - - - - -
292 <i>Phosphila miseloides</i> (Gn.)	U	- F M - - - - - - N -
293 <i>Phosphila turbulenta</i> Hbn.	O	- F - - - - - S O - -
294 <i>Phyprosopus callitrichoides</i> Grt.	U	- F - - M - - - - - -
295 <i>Phytometra rhodarialis</i> (Wlk.)	U	- - M - - J - - - - -
296 <i>Plathypena scabra</i> (F.)	U	- F - - - - - - - - -
297 <i>Platysenta mobilis</i> (Wlk.)	U	- - - - - - - - D
298 <i>Platysenta sutor</i> (Gn.)	O	- F - - - J - - - N D
299 <i>Platysenta videns</i> (Gn.)	U	- - M - - - - - - - -
300 <i>Polygrammate hebraeicum</i> Hbn.	O	- - - - - A - - - - -
301 <i>Proroblemma testa</i> B. & McD.	O	- - - A - J - - - N D
302 <i>Psaphidia resumens</i> Wlk.	U	J F - - - - - - - - -
303 <i>Pseudanthracia coracias</i> (Gn.)	U	- F - - - - - - - - -
304 <i>Pseudoplusia includens</i> (Wlk.)	O	J - - - - - - O - O
305 <i>Ptichodis herbarum</i> (Gn.)	U	- - - M - J - S - - -
306 <i>Ptichodis vinculum</i> (Gn.)	U	- - - A M - - - - - -
307 <i>Redectis vitrea</i> (Grt.)	U	- - - A - - - - - - -
308 <i>Renia salusalis</i> (Wlk.)	U	- F M - - - - - - - -
309 <i>Schinia bina</i> (Gn.)	U	- - - - - - - S - - -
310 <i>Schinia gaurae</i> (J.E.Smith)	U	- - - - M - - - - - -
311 <i>Schinia nubila</i> (Stkr.)	U	- - - - - - - S - - -
312 <i>Schinia nudina</i> (Drury)	U	- - - - - - - S - - -
313 <i>Schinia rivulosa</i> (Gn.)	U	- - - - - - - S - - -
314 <i>Schinia saturata</i> (Grt.)	C	- - - - - - A S O - -
315 <i>Schinia scissoides</i> (Benj.)	U	- - - - - - - O - - -
316 <i>Schinia siren</i> (Stkr.)	U	- - - - - - - S - - -

Table 1 (Continued)

	Abundance	Month
317 Schinia trifascia Hbn.	O	- - - - - S O N -
318 Schinia tuberculum (Hbn.)	U	- - - - - O - -
319 Scolecocampa liburna (Gey.)	U	- - M - M - - - - -
320 Selenisa sueroides (Gn.)	O	- - - - - O - D
321 Sigela prob. eoides (B. & McD.)	U	- F - - - - - D
322 Spodoptera eridania (Cram.)	U	- - - - - J - - O - -
323 Spodoptera latifascia (Wlk.)	O	- - - - M - - - - N D
324 Spragueia onagrus (Gn.)	C	- - - A - J J - S - - -
325 Tarachidia candefacta (Hbn.)	O	- - M - - - - A S - - -
326 Tarachidia semiflava (Gn.)	U	- - - - M J - - S - - -
327 Thioptera nigrofimbria (Gn.)	U	- - M A - - - S - - -
328 Trichoclea vindemialis (Gn.)	U	- - M - - - - - - -
329 Xystopeplus rufago (Hbn.)	U	- F - - - - - - - -
330 Zale aeruginosa (Gn.)	C	J F M - M J - - - - -
331 Zale buchholzi McD.	C	J F M - - - - - N -
332 Zale declarans (Wlk.)	C	- F M A - - - - - - -
333 Zale horrida Hbn.	U	- - M - - - - - - -
334 Zale lunata (Drury)	O	- - - - M J - - - - -
335 Zale lunifera (Hbn.)	O	- F M - - - - - - - -
336 Zanclognantha minoralis Sm.	U	- F - - - - - - - -
337 ? Cyathissa n. sp.	C	- F M A - - - A S O N -
NOTODONTIDAE		
338 Dasylophia anguina (J.E. Smith)	O	- F M A - - - - S - - -
339 Datana angusii G. & R.	O	- - - - - S - - - -
340 Datana integerrima G. & R.	U	- - - - - M - - - - -
341 Datana major G. & R.	O	- - - - - J J A S - - - -
342 Datana modesta Beutenmuller	U	no date
343 Datana near ranaiceps (Guer.-Meneville)	U	- - - - - A - - - - -
344 Datana robusta Stkr.	U	- - - - - A - - - - -
345 Furcula cinerea (Wlk.)	U	- - - - - S - - - -
346 Heterocampa astarte Doubleday	U	- - M A - - - A - - - -
347 Heterocampa biundata Wlk.	O	- F - A - - - - O N -
348 Heterocampa umbrata Wlk.	O	- - M A - - - - - D
349 Heterocampa varia Wlk.	O	- - - A - - - A S - - -
350 Hyparpax perophoroides (Stkr.)	U	- F - A - - - - - - -
351 Hyperaeschra georgica (H.-S.)	U	- - M A - - - A - - - -
352 Lochmaeus bilineata (Pack.)	U	- F - - - - - - - -
353 Lochmaeus manteo Doubleday	U	- - - - - J - - - - -
354 Macrurocampa marthesia (Cram.)	O	- - - - - S O N D
355 Nadata gibbosa (J.E. Smith)	C	- F M - - J J - S - - -
356 Oligocentria lignicolor (Wlk.)	U	- - - - - S - - - -
357 Peridea angulosa (J.E. Smith)	U	J - - - - - N -
358 Schizura ipomoeae Doubleday	U	- - - - - S O - -

Table 1 (Continued)

	Abundance	Month
359 <i>Schizura unicornis</i> (J.E.Smith)	O	- - M A - - - - - N -
360 <i>Symmerista albifrons</i> (J.E.Smith)	O	J F - - - - - - - - -
OECOPHORIDAE		
361 <i>Antaeotricha leucillana</i> (Zell.)	A	J F M A - - - - - O - D
362 <i>Antaeotricha osseella</i> (Wlsm.)	U	- - - - - - - - - O - -
363 <i>Antaeotricha vestalis</i> (Zell.)	C	- - - - - M - - A S - - -
364 <i>Callima nathrax</i> Hodges	O	- - - - - - - - - S - - -
365 <i>Decantha boreasella</i> (Cham.)	O	- F - - - - - - - - - -
366 <i>Inga sparsiciliella</i> (Clem.)	C	- - - A - - J - - - - -
PLUTELLIDAE		
367 <i>Plutella xylostella</i> (L.)	O	- - - - - - - - - O - -
PSYCHIDAE		
368 <i>Cryptothelea gloverii</i> (Pack.)	O	- - - - - M - - - - - O - -
369 <i>Thyridopteryx ephemeraeformis</i> (Haw.)	C	- - - - - - J - - - - -
PTEROPHORIDAE		
370 <i>Geina ? periscelidactyla</i> (Fitch)	U	- - - - - - - - - - - D
371 <i>Oidaemotophorus balanotes</i> (Meyr.)	A	- - M - - - - - S O N D
372 <i>Stenoptilia parva</i> Wlsm.	U	- - - - - - - - - - - N -
PYRALIDAE		
373 <i>Acrobasis grossbecki</i> (B. & McD.)	U	- - - - - M - - - - - - -
374 <i>Adelphia petrella</i> (Zell.)	O	- F M - - - - - - - - -
375 <i>Aglossa cuprina</i> Zell.	U	- - - A - - - - - - - - -
376 <i>Anageshna primordialis</i> (Dyar)	O	- - M - - - - - - - - -
377 <i>Apogeshna stenialis</i> (Gn.)	U	- - M - - - - J - S - - -
378 <i>Argyria lacteella</i> (F.)	O	J - - - - - - - - O - -
379 <i>Arta</i> sp.	U	- - - - - - - - - O - -
380 <i>Atheloca subrufella</i> (Hulst)	U	J - - - - - - - - - - -
381 <i>Basacallis tarachodes</i> Dyar	O	J - M - - - - - - - - D
382 <i>Blepharomastix ranalis</i> (Gn.)	O	- - - A M - - - - - - - -
383 <i>Chrysendeton imitabilis</i> (Dyar)	U	- - - A - - - - - - - - -
384 <i>Clydonopteron tecomae</i> Riley	U	- - - - - - - - - - - O
385 <i>Conchylodes concinnalis</i> Hamp.	O	- - - - - - J A S - - -
386 <i>Crambus praefectellus</i> (Zinck.)	U	- - - A M - - - - - - - -
387 <i>Crambus quinquareatus</i> Zell.	U	- - M - - - - - S - - -
388 <i>Crambus sanfordellus</i> Klots	O	- - M - - - - - - - - O
389 <i>Crambus satrapellus</i> (Zinck.)	C	J F M A M - - - - O - D
390 <i>Desmia funeralis</i> (Hbn.)	O	- F M - M - - - - - - -
391 <i>Diacme ? adipaloides</i> (G. & R.)	U	J F - - - - - - - - N -
392 <i>Diasemiopsis leodocusalis</i> (Wlk.)	U	- - - - - - - - - O - -
393 <i>Diatraea lisetta</i> (Dyar)	U	- - - - - - - - - O - -
394 <i>Dicymolomia julianalis</i> (Wlk.)	O	- - M A - - - - - - - -
395 <i>Dioryctria abietivorella</i> (Grt.)	U	- - M - - - - - - - - -
396 <i>Dioryctria amatella</i> (Hulst)	C	- - - A M - - - - O N -

Table 1 (Continued)

	Abundance	Month
397 <i>Dioryctria clarioralis</i> (Wlk.)	O	- - M A M - J - - - - -
398 <i>Donacaula maximella</i> (Fern.)	O	- - - A M - - - - - - -
399 <i>Donacaula</i> prob. <i>melinella</i> (Clem.)	U	- - - - - - - - S - - - -
400 <i>Donacaula nitidella</i> (Dyar)	U	- - M A - - J - - - - - -
401 <i>Donacaula roscidella</i> (Dyar)	U	- - - - M - - - - S O - - -
402 <i>Donacaula sordidella</i> (Zinck.)	U	- - - A - - - - - - - - -
403 <i>Elasmopalpus lignosellus</i> (Zell.)	U	- - - - - - - - - - N D
404 <i>Eoparagyraetis irroratalis</i> (Dyar)	C	- - - A - - - - - O N - - -
405 <i>Epipagis huronalis</i> (Gn.)	U	- - - - - - - - - O N - - -
406 <i>Epipaschia superatalis</i> Clem.	U	- - - - M - - - - - - - - -
407 <i>Eudonia strigalis</i> (Dyar)	O	J F - - - - - - - N - - -
408 <i>Eustixia pupula</i> Hbn.	U	- - - A - - - - - - - - -
409 <i>Fissicrambus ?hemiochrellus</i> (Zell.)	O	J - - A - - - - - O N - - -
410 <i>Fissicrambus mutabilis</i> (Clem.)	U	- - - - - - - - O - - - -
411 <i>Galasa nigrinodis</i> (Zell.)	U	- - - A - - - - - - - - -
412 <i>Glaphyria basiflavalis</i> B. & McD.	U	- - M - - - - - - - - -
413 <i>Glaphyria fulminalis</i> (Led.)	U	- - - A - - - A - - - - -
414 <i>Glaphyria glaphyralis</i> (Gn.)	U	- - - A M - - - - - - - - -
415 <i>Glaphyria sesquialis</i> Hbn.	U	- - - - M - - - - - - - - -
416 <i>Glyphodes sibillalis</i> Wlk.	U	- - - - - - - - S O - - -
417 ? <i>Hahncappsia mancalis</i> (Led.)	U	- - - - M - - - - - - - - -
418 <i>Hellula rogatalis</i> (Hulst)	U	- F - A - - - - - - - - -
419 <i>Herculia binodulalis</i> (Zell.)	O	- - - A - - - - - N - - -
420 <i>Herculia sordidalis</i> B. & McD.	U	- - - - - - - - N - - - -
421 <i>Hydriris ornatalis</i> (Dup.)	U	- - - - - - - - N - - - -
422 <i>Hymenia perspectalis</i> (Hbn.)	U	- - - - - - - - N O - - -
423 <i>Jocara incrustalis</i> (Hulst)	O	J F - - M - - A S - - - - -
424 <i>Laetilia coccidivora</i> (J.H.Comstock)	U	- F - - - - - - - - O - - - -
425 <i>Lepidomys irrenosa</i> Gn.	C	- - M A M - - A S - - - - -
426 <i>Lineodes fontella</i> Wlsm.	U	- - - - - J - - S - - - -
427 <i>Lipocosmodes fuliginosalis</i> (Fern.)	U	- - - - - - - - S - - - -
428 <i>Marasmia cochrusalis</i> (Wlk.)	U	- F - - - - - - - - - - -
429 <i>Melitara prodenialis</i> Wlk.	U	- - - A - - - - - O - - -
430 <i>Mesolia incertella</i> (Zinck.)	U	- - - - - - - - O - - - -
431 <i>Microcausta flavipunctalis</i> B.+McD.	U	- F M - - - - - - - - - - -
432 <i>Microcrambus biguttellus</i> (Fbs.)	U	no date
433 <i>Microcrambus elegans</i> (Clem.)	C	- - M A M - - - - - - - - -
434 <i>Microtheoris ophionalis</i> (Wlk.)	U	- - - - - J - - - - - - - - -
435 <i>Moodna ostrinella</i> (Clem.)	C	J F M A - - - - - - - D
436 <i>Munroessa gyralis</i> (Hulst)	U	- - - - - - - A - O - - - -
437 <i>Munroessa icciusalis</i> (Wlk.)	U	- - - - - - - - N - - - -
438 <i>Munroessa nebulosalis</i> (Fern.)	U	- - - - - - - O - - - - -
439 <i>Neargyraetis slossonalis</i> (Dyar)	U	- - - - - - - - N - - - -

Table 1 (Continued)

	Abundance	Month
440 <i>Nomophila nearctica</i> Mun.	U	- - - - - S - - -
441 <i>Oenobotys vinotinctalis</i> (Hamp.)	U	- - M - - - - - - - -
442 <i>Omphalocera munroei</i> Martin	U	- - - - M - - - S - - -
443 <i>Palpita magniferalis</i> (Wlk.)	U	J - - A - - - A - O - -
444 <i>Palpita cincinnatalis</i> Mun.	U	- F M - - - - - - - -
445 <i>Parachma ochracealis</i> Wlk.	O	- - - A - - - A S - - -
446 <i>Parapediasia decorella</i> (Zinck.)	U	- - - - - - - A - O - -
447 <i>Paraponyx allionealis</i> Wlk.	C	- F - A - J - - - - D
448 <i>Paraponyx obscuralis</i> (Grt.)	U	- - - - - - - - - D
449 <i>Peoria approximella</i> (Wlk.)	U	- - - - - - S - - -
450 <i>Phycitinae</i> (sp.?)	U	- - - - - - - O - -
451 <i>Pleuroptya penumbralis</i> (Grt.)	U	- - - - - - - N -
452 <i>Prionapteryx achatina</i> Zell.	U	- - - - - J - - - O - -
453 <i>Prionapteryx serpentella</i> (Kft.)	U	- - - - - J - - - - -
454 <i>Pyrausta tyralis</i> (Gn.)	O	- F - - - - - A - O N -
455 <i>Raphiptera argillaceella mimimella</i> (Rob.)	O	- F M A - - - - - N -
456 <i>Salebriaria fructetella</i> (Hulst)	U	- - - - M - - - - - -
457 <i>Samea ecclesialis</i> Gn.	C	J - - - - - - - N D
458 <i>Samea multiplicalis</i> (Gn.)	A	- - - - - - - - N D
459 <i>Scirpophaga perstrialis</i> (Hbn.)	U	- - - - - - S - - -
460 <i>Synclita oblitalis</i> (Wlk.)	O	- - - - - - - O - D
461 <i>Synclita tinealis</i> Mun.	U	- - - - - - - N -
462 <i>Tampa dimediatella</i> Rag.	U	- - - A - - - - - - -
463 <i>Tetralopha melanogrammos</i> Zell.	C	- F M A M - - A - - - -
464 <i>Tetralopha robustella</i> Zell.	O	- - - A M J - A - O - -
465 <i>Tetralopha scortealis</i> (Led.)	O	- - M A - - - - - - -
466 <i>Thaumatopsis edonis</i> (Grt.)	O	- - - - - - - O N -
467 <i>Tulsa finitella</i> (Wlk.)	U	J - - - - - - - - -
468 <i>Ufa rubedinella</i> (Zell.)	C	- - M - - - - - O N D
469 <i>Uresiphita reversalis</i> (Gn.)	U	- - - - - - - O - -
470 <i>Urola nivalis</i> (Drury)	C	J F M A - - - - - N -
471 <i>Xanthophysa psychialis</i> (Hulst)	U	- - - - - J - - - - -
472 <i>Xubida linearella</i> (Zell.)	O	- - M A - J - - - - -
SATURNIIDAE		
473 <i>Actias luna</i> (L.)	C	- - M - - - - A - - - -
474 <i>Anisota consularis</i> Dyar	U	- - - - - - A - - - -
475 <i>Anisota virginiensis pellucida</i> (J.E.Smith)	A	- - - - - J - A S - - -
476 <i>Antheraea polyphemus</i> (Cram.)	C	- - - - - - - O - -
477 <i>Automeris io</i> (F.)	A	- - - - - J - A S O - -
478 <i>Citheronia regalis</i> (F.)	U	- - - - - - A - - - -
479 <i>Dryocampa rubicunda</i> (F.)	A	- - - - M - J A S - - -
480 <i>Eacles imperialis</i> Drury	C	- - - - - - A S - - -
481 <i>Hemileuca maia</i> (Drury)	O	J - - - - - - - - -

Table 1 (Continued)

	Abundance	Month
SCYTHRIDIDAE		
482 <i>Scythris</i> n. sp.	U	- - - - - 0 - -
483 <i>Scythris</i> sp.	U	- - - - - - - - D
SESIIDAE		
484 <i>Carmenta texana</i> (Hy.Edw.)	U	- - - - - S 0 - -
485 <i>Synanthedon alleri</i> (Engelh.)	U	- - - - - - 0 - -
486 <i>Synanthedon exitiosa</i> (Say)	A	- - - - - S 0 - -
487 <i>Synanthedon sapygaeformis</i> (Wlk.)	A	- - - - - S 0 - -
SPHINGIDAE		
488 <i>Ceratonia catalpae</i> (Bdv.)	U	- - - - - A - - - -
489 <i>Darapsa myron</i> (Cram.)	C	- - M A - - - S - - -
490 <i>Deidamia inscripta</i> (Harr.)	C	- - M A - - - - - -
491 <i>Dolba hyloeus</i> (Drury)	O	- - - A - J - - - - -
492 <i>Enyo lugubris</i> (L.)	C	- - - - - - - - 0 - -
493 <i>Eumorpha fasciatus</i> (Sulz)	U	- - - - M - - - - - -
494 <i>Laothoe juglandis</i> (J.E.Smith)	C	- - M - - - - S - - -
495 <i>Lapara coniferarum</i> (J.E.Smith)	O	- - - A - J - - S - - -
496 <i>Paonias excaecatus</i> (J.E.Smith)	U	- - - - - - A S - - -
497 <i>Xylophanes tersa</i> (L.)	O	- - - - - - - - 0 - -
TINEIDAE		
498 <i>Acrolophus arcanella</i> (Clem.)	U	- - - - - - - S - - -
499 <i>Acrolophus plumifrontella</i> (Clem.)	C	- - - - - J - - - - -
500 <i>Acrolophus propinquus</i> (Wlsm.)	U	- - - - - J - - S - - -
501 <i>Acrolophus texanella</i> (Cham.)	U	- - - A - - - - - D
502 <i>Acrolophus</i> near <i>variabilis</i> (Wlsm.)	U	- - - - - J - - - - -
503 <i>Acrolophus</i> sp.	O	- - M - - - - - - -
504 <i>Acrolophus</i> n. sp.	U	- - - - M - - - - - -
505 <i>Nemapogon rileyi</i> (Dietz)	C	- F - A - - - - - N -
506 <i>Phereoeca walsinghami</i> (Busk.)	C	no date
507 <i>Tinea apicimaculella</i> Cham.	U	- F - - - - - - - -
508 <i>Xylesthia pruniramiella</i> Clem.	U	- F - A - - - - - - -
509 sp.	U	- - M - - - - - - -
510 sp.	U	- - - - - - - - N -
511 sp.	U	J - M - - - - - - D
TORTRICIDAE		
512 <i>Amorbia humerosana</i> Clem.	A	- - - - - J - - - O N D
513 <i>Ancylis comptana</i> (Frolich)	O	- F - - M - - - - D
514 <i>Archips argyrospila</i> (Wlk.)	A	- - - A M - - - - -
515 <i>Archips georgiana</i> (Wlk.)	A	- - - A M - - - - -
516 <i>Archips</i> ? <i>grisea</i> (Rob.)	U	- - - A - - - - - -
517 <i>Archips infumatana</i> (Zell.)	U	- - - - M - - - - - -
518 <i>Archips semiferana</i> (Wlk.)	A	- - - A M - - - - -
519 <i>Argyrotaenia</i> n. sp.	O	- F - - - - - - - D

Table 1 (Continued)

	Abundance	Month
520 <i>Argyrotaenia ivana</i> (Fern.)	U	- F - - - - -
521 <i>Argyrotaenia quercifolia</i> (Fitch)	C	- - - A M - - - - -
522 <i>Argyrotaenia tabulana</i> Free.	A	J F M A - - - - S O - D
523 <i>Cacocharis cymotoma</i> (Meyr.)	U	- - M - - - - - N -
524 <i>Chimoptesis pennsylvaniana</i> (Kft.)	A	J F M - - - - - - -
525 <i>Chimoptesis n. sp.</i>	C	- F M - - - - - - -
526 <i>Choristoneura obsoletana</i> (Wlk.)	U	- - - - - S - - - -
527 <i>Choristoneura rosaceana</i> (Harr.)	A	- F - A M - - - - - -
528 <i>Coelostathma discopunctana</i> Clem.	O	- F M - - - - - - - -
529 <i>Crociosema plebejana</i> Zell.	U	J F M - - - - - - - -
530 <i>Croesia semipurpurana</i> (Kft.)	A	- - - A M - - - - - -
531 <i>Cydia ingens</i> (Heinr.)	U	- - - A M - - - - - -
532 <i>Cydia n. sp.</i>	O	- F - - - - - - - - -
533 <i>Cydia n. sp.</i>	O	J F M - - - - - - - -
534 <i>Cydia n. sp.</i>	U	- F - - - - - - - - -
535 <i>Ecdytolopha punctidiscanum</i> (Dyar)	U	- - - - M - - - - O - -
536 <i>Endopiza prob. liriodendrana</i> (Kft.)	O	- F M - - - - - - - -
537 <i>Endopiza spiraeifolia</i> (Heinr.)	U	- - M - - - - - - - -
538 <i>Endothenia hebesana</i> (Wlk.)	U	- - - A - - - - - - - -
539 <i>Epiblema scudderiana</i> (Clem.)	O	- - M A M J - - - - - -
540 <i>Epiblema strenuana</i> (Wlk.)	U	- - M A - - - - - - - -
541 ? <i>Epiblema sp.</i>	U	- - - - - - - - O - -
542 ? <i>Epinotia sp.</i>	U	- F - - - - - - - - -
543 <i>Episimus argutanus</i> (Clem.)	U	- - - A - - - - - - - -
544 <i>Episimus tyrius</i> Heinr.	U	- F M A M - - - - - - -
545 <i>Eucosma adamantana</i> (Gn.)	C	- - - - - - - - N O
546 <i>Eucosma circulana</i> Hbn.	U	J - - - - - - - - -
547 <i>Eucosma cocana</i> Kft.	A	- F M A M - - - - - - -
548 <i>Eucosma gigantea</i> (Riley)	U	- - - - - J - - - - - - -
549 <i>Eucosma guttalana</i> Blanchard	O	- - - - M - - A S - N -
550 <i>Eucosma robinsonana</i> (Grt.)	A	- - M A M - J - - - - -
551 ? <i>Eucosma n. sp.</i>	O	J F M - - - - - - - -
552 <i>Eumaroza malachitana</i> (Zell.)	O	- F - - - - - O N -
553 <i>Gretchena bolliana</i> (Slingerland)	O	- F - A M - - - S - - D
554 <i>Melissopus latiferreanus</i> (Wlsm.)	O	- - - - - A - O N -
555 ? <i>Olethreutes devotana</i> Kft.	?	- - M - - - - - - - -
556 <i>Olethreutes near hippocastana</i> (Kft.)	U	- - - - - - - - O - -
557 <i>Petrova gemistrigulana</i> (Kft.)	C	- - - A M - - - - - - -
558 <i>Phaecasiophora niveiguttana</i> (Grt.)	O	- - M A - - - - - - - -
559 <i>Phaneta ?argutipunctana</i> Blanch. & Knudson	O	- - - - - - S - - - -
560 <i>Phaneta raracana</i> (Kft.)	O	- - M - - - - - S O - -
561 <i>Phaneta sp.</i>	U	J - - - - - - S - - D
562 ? <i>Phaneta sp.</i>	U	- - - - - - - - - D

Table 1 (Continued)

	Abundance	Month
563 <i>Platynota exasperatana</i> (Zell.)	C	J F M - - - - - O - -
564 <i>Platynota flavedana</i> Clem.	A	J F M A M - - - S O N D
565 <i>Platynota idaeusalis</i> (Wlk.)	U	- - M - - - - - - - -
566 <i>Platynota rostrana</i> (Wlk.)	U	- F - - - - - - - - -
567 <i>Pseudexentera haracana</i> (Kft.)	U	- F M - - - - - - - - -
568 <i>Pseudexentera spoliata</i> (Clem.)	U	- F - - - - - - - - -
569 <i>Pseudexentera</i> sp.	O	- F M - - - - - - - - -
570 <i>Pseudogalleria inimicella</i> (Zell.)	O	- - M A - - - - - O - -
571 <i>Ptycholoma peritana</i> (Clem.)	C	- F M A - - - - - N D
572 <i>Rhopobota</i> near <i>finitimana</i> Heinr.	C	- F M - - - - - S - - -
573 <i>Rhyacionia busckana</i> Heinr.	C	- F - - - - - - - - N D
574 <i>Rhyacionia frustrana</i> (Comstock)	U	- F - - - - - - - - -
575 <i>Rhyacionia</i> n. sp.	U	- F - - - - - - - - -
576 <i>Sonia constrictana</i> (Zell.)	C	J - M A - - - - - O N -
577 <i>Sonia</i> sp.	U	- - - - - - - - - O - -
578 <i>Sparganothis caryae</i> (Rob.)	U	- - - - M J - - - - - -
579 <i>Sparganothis</i> n. sp.	O	no date
580 <i>Strepsicrates smithiana</i> (Wlsm.)	O	- - - A M - J - - - - -
581 <i>Suleima</i> sp.	U	- F - - - - - - - - -
582 ? <i>Suleima</i> sp.	A	- F M - - - - - - - - -
583 <i>Zomaria andromedana</i> (B. & McD.)	C	- F M - - - - - S O N -
584 <i>Zomaria interruptolineana</i> (Fern.)	C	- F M - - - - - S O - -
585 <i>Zomaria rosaochreana</i> (Kft.)	O	- - - - - - - A - O - D
586 n. sp.	U	- - - A - - - - - - - -
587 sp.	U	- - - - - - - S - - -
YPONOMEUTIDAE		
588 <i>Atteva punctella</i> (Cram.)	C	- - - - M - - - S - - -
589 <i>Urodus parvula</i> (Hy. Edw.)	O	- F M - - - - - - - - -
ZYGAENIDAE		
590 <i>Acoloitus falsarius</i> Clem.	O	- - - - - - - S O - -
DANAIDAE		
591 <i>Danaus gilippus berenice</i> (Cram.) Queen		
592 <i>Danaus p. plexippus</i> (L.) Monarch		
HESPERIIDAE		
593 <i>Calpodus ethlius</i> (Stoll) Brazilian Skipper		
594 <i>Copaeodes minimus</i> (Edw.) Southern Skipperling		
595 <i>Epargyreus c. clarus</i> (Cram.) Silver-spotted Skipper		
596 <i>Erynnis horatius</i> (Scud. & Burg.) Horaces Dusky-wing		
597 <i>Lerema accius</i> (J.E. Smith) Clouded Skipper		
598 <i>Oligoria maculata</i> (Edw.) Twin-spotted Skipper		
599 <i>Panoquina ocola</i> (Edw.) Ocola Skipper		
600 <i>Polites v. vibex</i> (Gey.) Whirlabout		
601 <i>Urbanus p. proteus</i> (L.) Long-tailed Skipper		

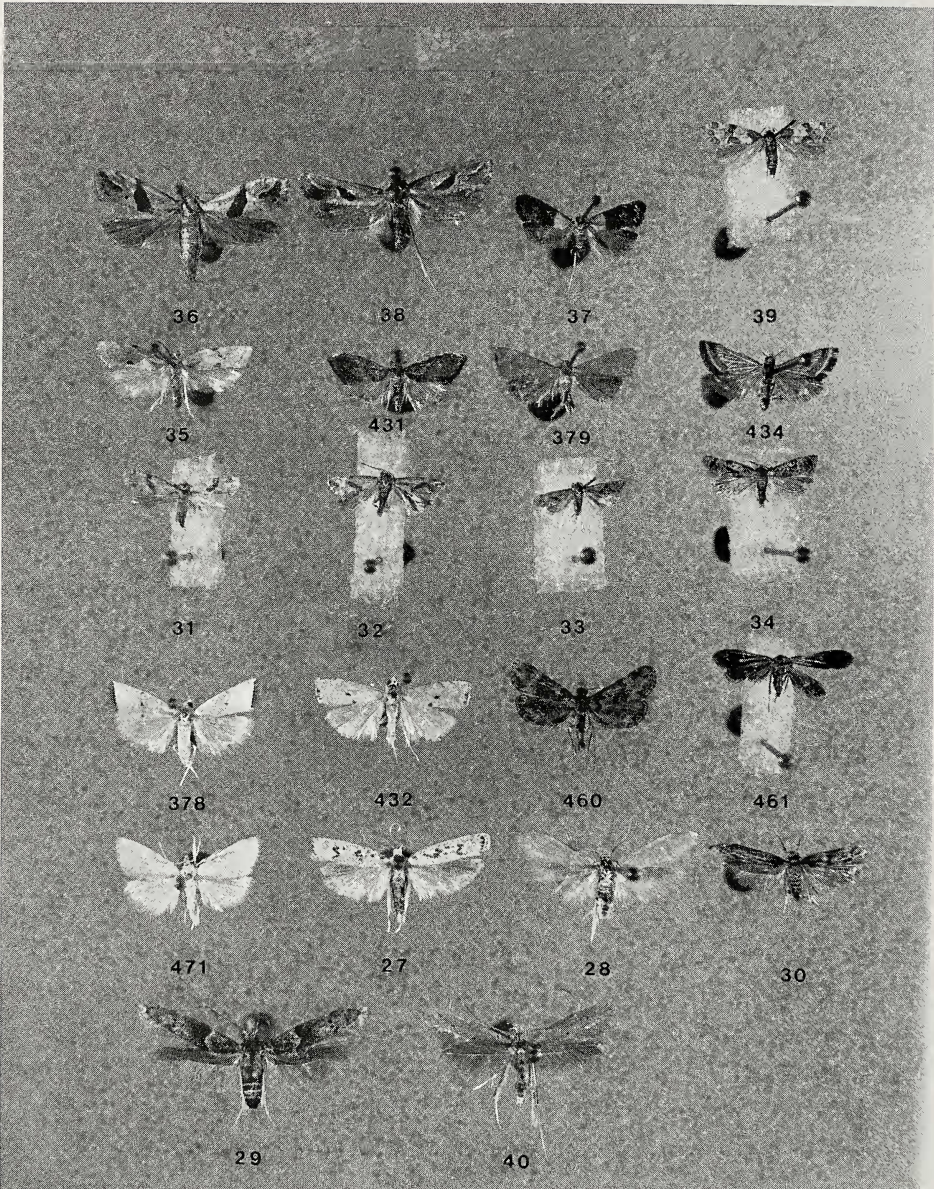
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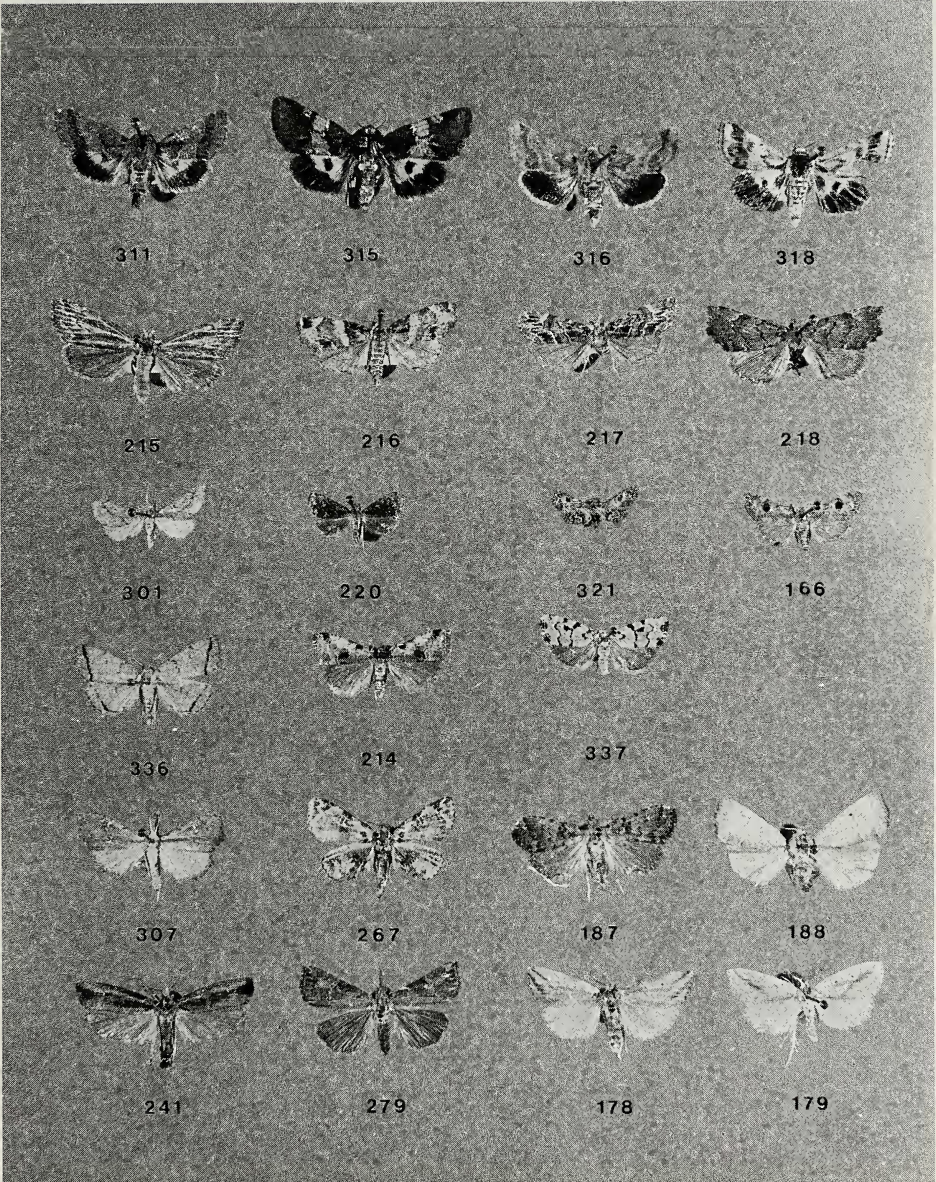
	Abundance	Month
PAPILIONIDAE		
602	<i>Battus p. philenor</i> (L.)	Pipevine Swallowtail
603	<i>Eurytides marcellus</i> (Cram.)	Zebra Swallowtail
604	<i>Papilio c. cresphontes</i> Cram.	Giant Swallowtail
605	<i>Papilio glaucus australis</i> Maynard	Tiger Swallowtail
606	<i>Papilio palamedes</i> Drury	Palamedes Swallowtail
607	<i>Papilio polyxenes asterius</i> Stoll	Black Swallowtail
608	<i>Papilio troilus ilioneus</i> J.E. Smith	Spicebush Swallowtail
PIERIDAE		
609	<i>Ascia monuste phileta</i> (F.)	Great Southern White
610	<i>Eurema d. दौरा</i> (Godt.)	Barred Sulpher
611	<i>Eurema l. lisa</i> Bdv. & Leconte	Little Sulpher
612	<i>Eurema nicippe</i> (Cram.)	Sleepy Orange
613	<i>Phoebis sennae eubule</i> (L.)	Cloudless Sulpher
614	<i>Zerene c. cesonia</i> (Stoll)	Dogface Sulpher
LYCAENIDAE		
615	<i>Calycopis cecrops</i> (F.)	Red-banded Hairstreak
616	<i>Euristrymon favonius</i> (J.E. Smith)	Southern Hairstreak
617	<i>Hemiargus ceraunus antibubastus</i> Hbn.	Ceraunus Blue
618	<i>Parrhasius m-album</i> (Bdv. & Leconte)	White-m Hairstreak
619	<i>Strymon m. melinus</i> Hbn.	Gray Hairstreak
NYMPHALIDAE		
620	<i>Agraulis vanillae nigrior</i> Michener	Gulf Fritillary
621	<i>Anartia jatrophae guantanamo</i> Mun.	White Peacock
622	<i>Asterocampa celtis</i> (Bdv. & Leconte)	Hackberry Butterfly
623	<i>Basilarchia archippus floridensis</i> (Stkr.)	Vicery
624	<i>Basilarchia arthemis astyanax</i> (F.)	Red-spotted Purple
625	<i>Heliconius charitonius tuckeri</i> Comstock	Zebra
626	<i>Junonia coenia</i> (Hbn.)	Buckeye
627	<i>Phyciodes phaon</i> (Edw.)	Phaon Crescent
628	<i>Phyciodes t. tharos</i> (Drury)	Pearl Crescent
629	<i>Vanessa atalanta rubria</i> (Fruhstorfer)	Red Admiral
630	<i>Vanessa virginiensis</i> (Drury)	Am. Painted Lady
SATYRIDAE		
631	<i>Hermeuptychia sosybius</i> (F.)	Carolina Satyr
632	<i>Megisto cymela viola</i> (Maynard)	Little Wood Satyr

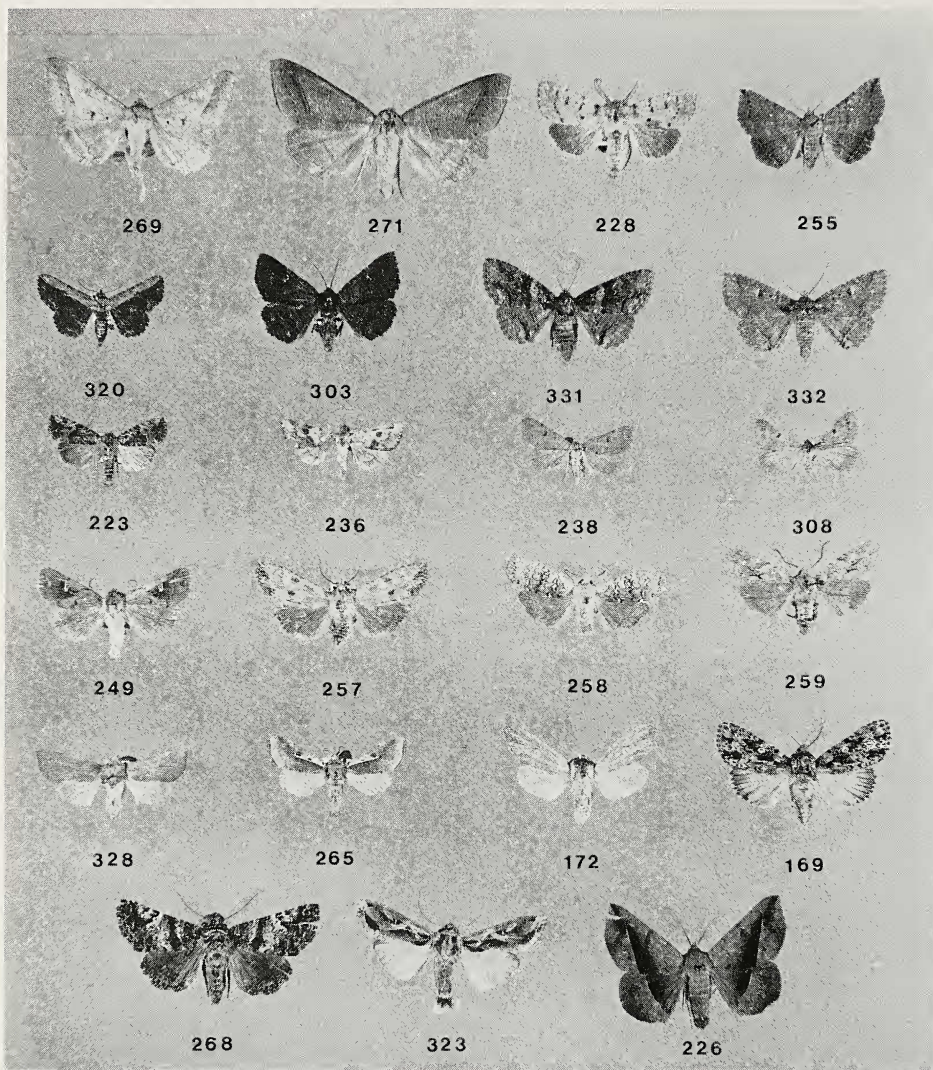
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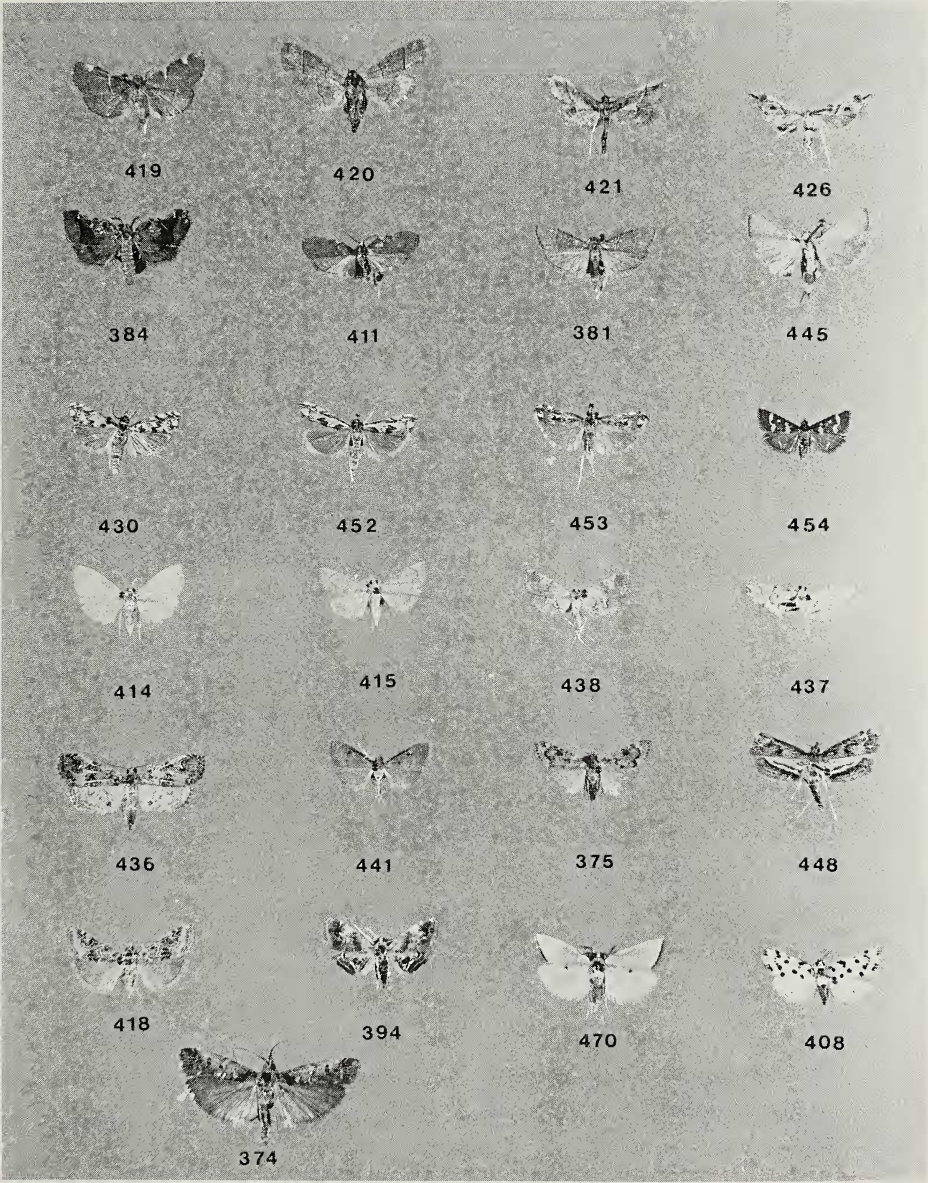
633 TINEIDAE: *Acrolophus* sp.

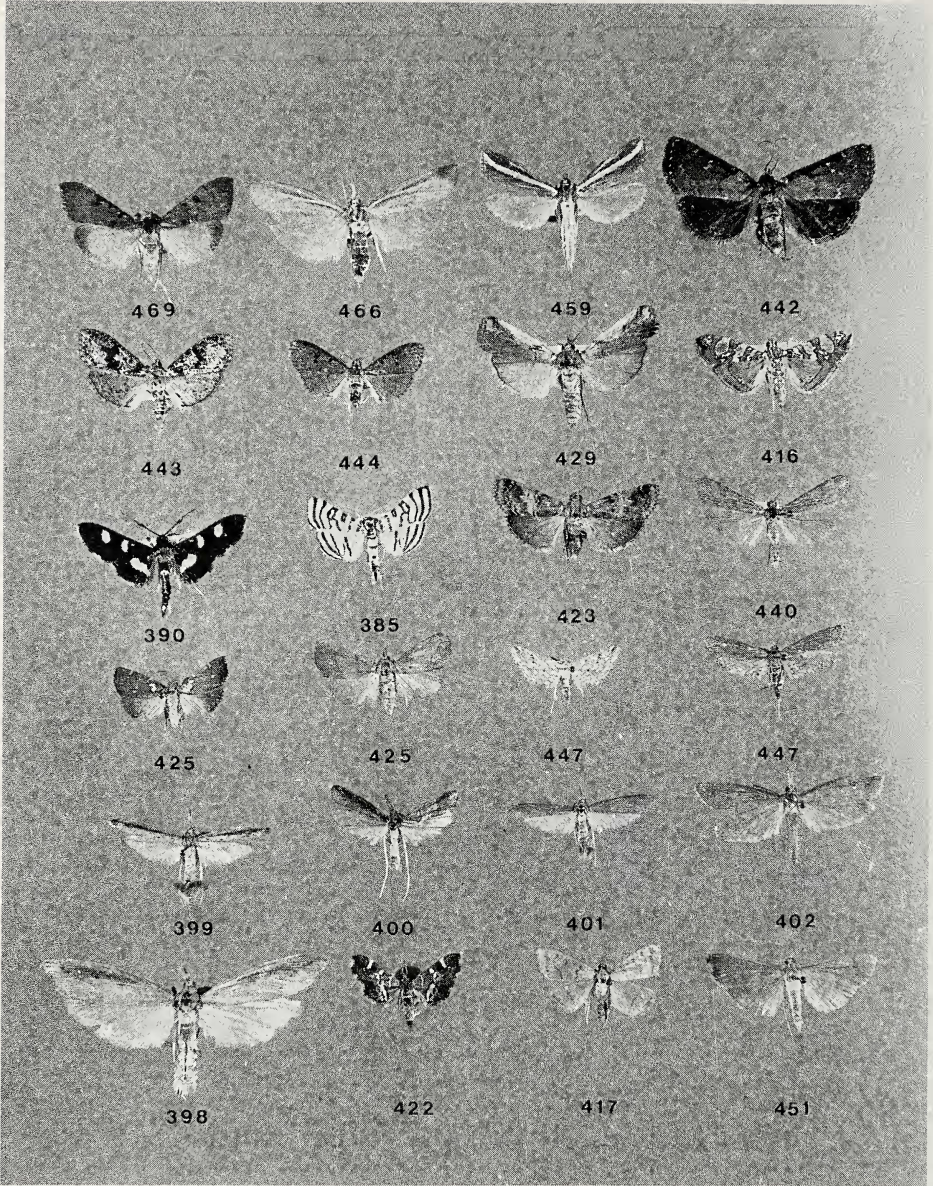
In the following plates, the figure number is equivalent to the species list number for each species in table 1.

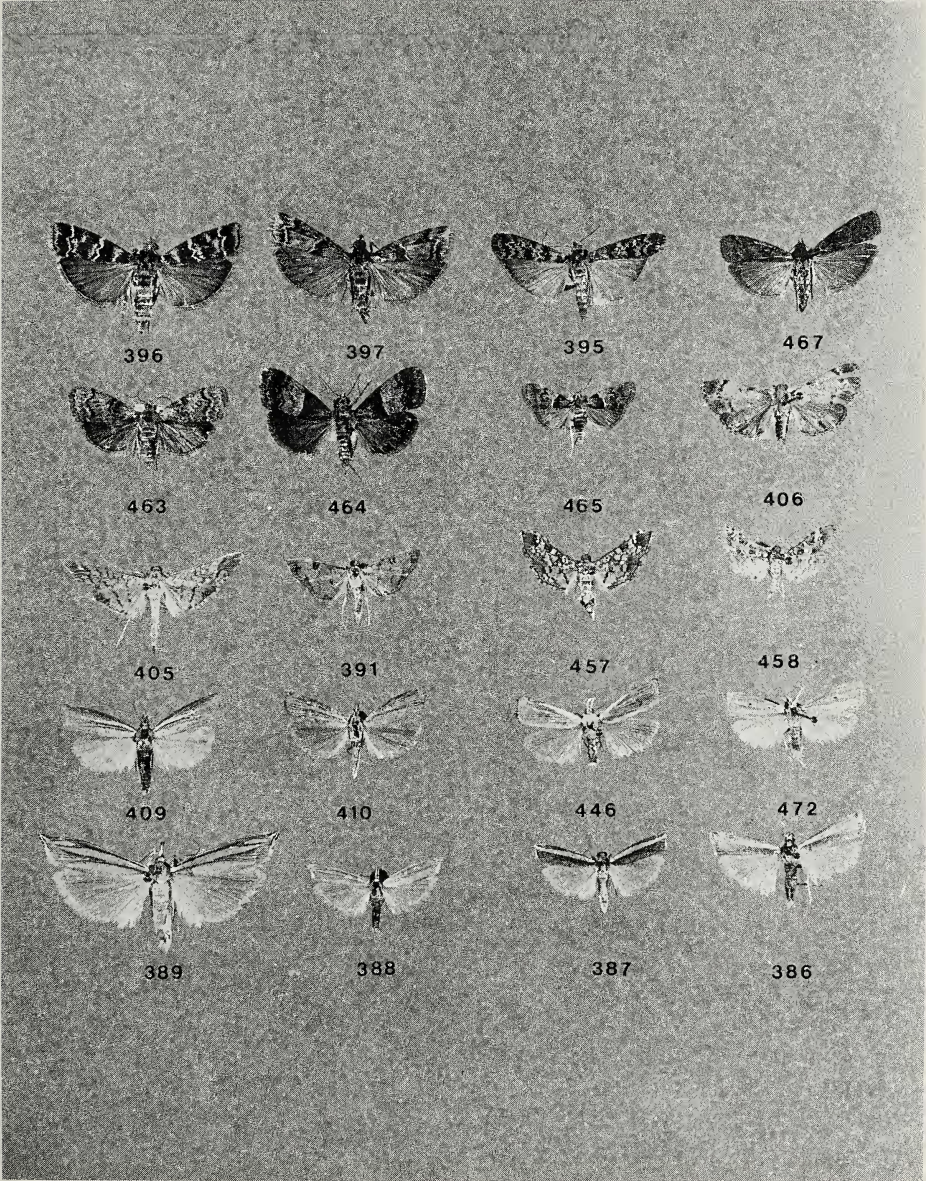


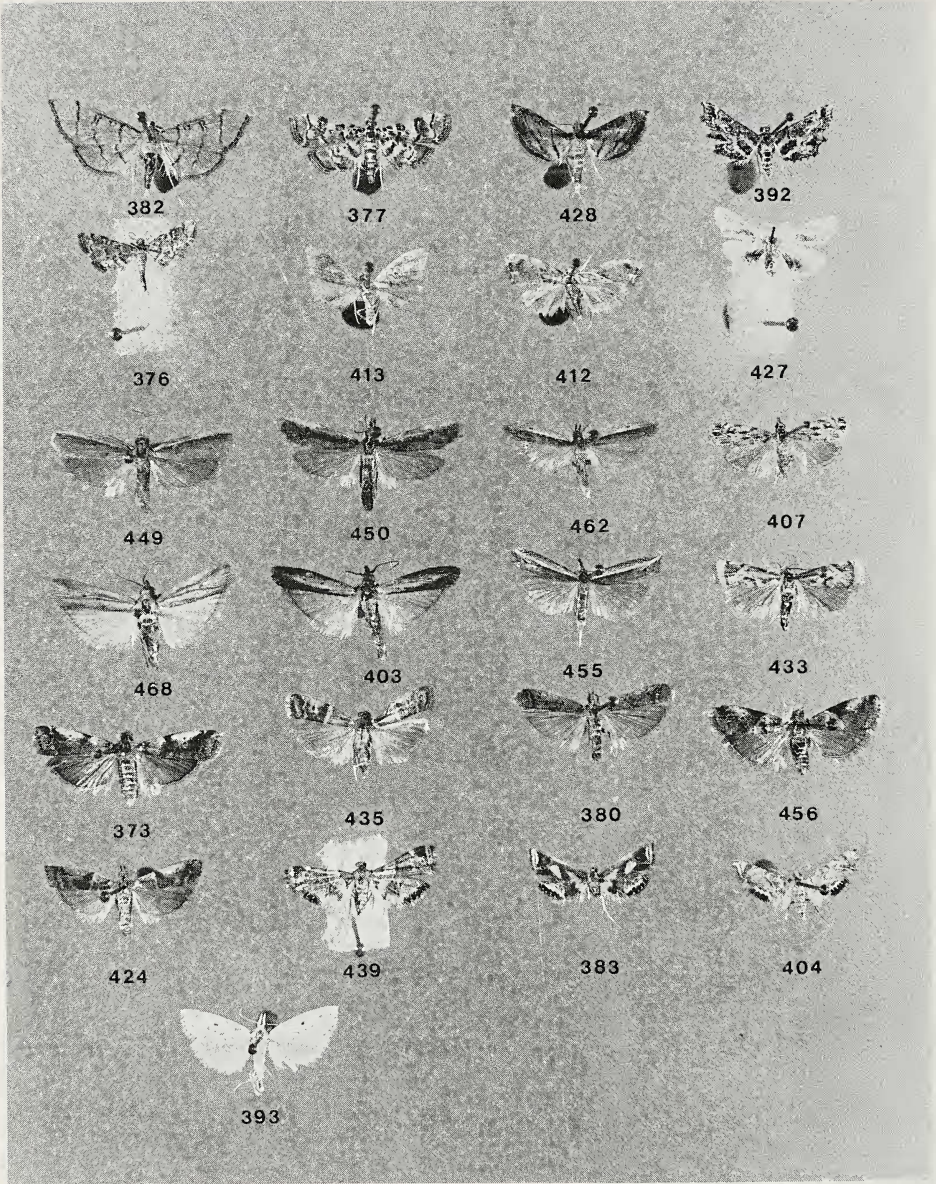














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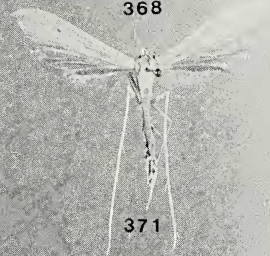
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